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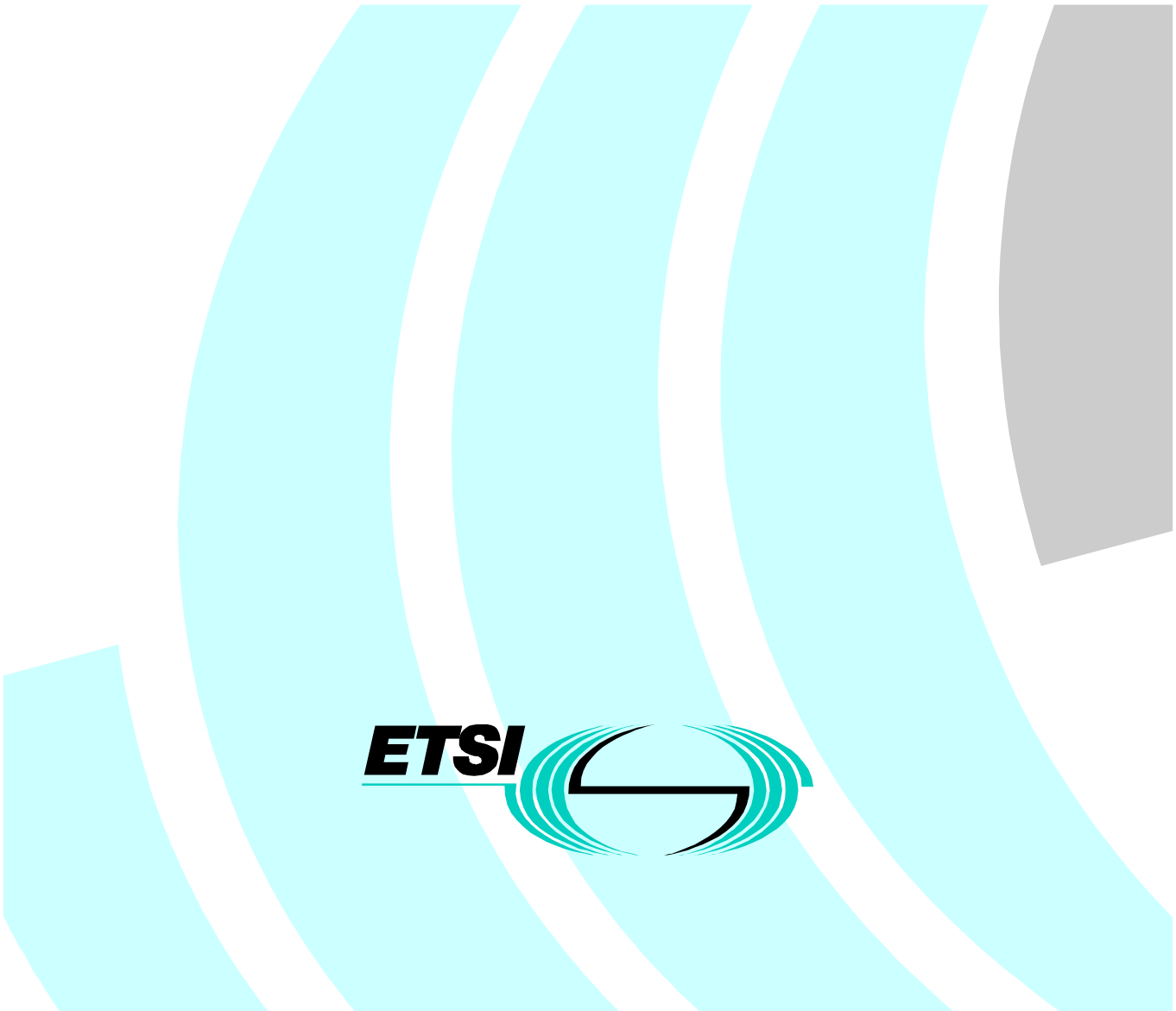
European Standard (Telecommunications series)

Integrated Services Digital Network (ISDN);
Signalling System No.7;
ISDN User Part (ISUP) version 3 for the international interface;
Part 35: Test Suite Structure and Test Purposes (TSS&TP) specification for supplementary services



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ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
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Contents

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Signalling Protocol and Switching (SPS).

The present document is part 35 of a multi-part EN covering the Integrated Services Digital Network (ISDN); Signalling System No.7 ISDN User Part (ISUP) version 3 for the international interface, as identified below:

Part 1: "Basic services";

Part 2: "ISDN supplementary services";

Part 3: "Calling Line Identification Presentation (CLIP) supplementary service";

Part 4: "Calling Line Identification Restriction (CLIR) supplementary service";

Part 5: "Connected Line Identification Presentation (COLP) supplementary service";

Part 6: "Connected Line Identification Restriction (COLR) supplementary service";

Part 7: "Terminal Portability (TP) supplementary service";

Part 8: "User-to-User Signalling (UUS) supplementary service";

Part 9: "Closed User Group (CUG) supplementary service";

Part 10: "Subaddressing (SUB) supplementary service";

Part 11: "Malicious Call Identification (MCID) supplementary service";

Part 12: "Conference Call, add-on (CONF) supplementary service";

Part 14: "Explicit Call Transfer (ECT) supplementary service";

Part 15: "Diversion supplementary services";

Part 16: "Call Hold (HOLD) supplementary service";

Part 17: "Call Waiting (CW) supplementary service";

Part 18: "Completion of Calls to Busy Subscriber (CCBS) supplementary service";

Part 19: "Three party (3PTY) supplementary service";

Part 20: "Completion of Calls on No Reply (CCNR) supplementary service";

Part 31: "Protocol Implementation Conformance Statement (PICS) proforma specification for supplementary services";

Part 32: "Test Suite Structure and Test Purposes (TSS&TP) specification for basic services";

Part 33: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for basic services";

Part 34: "Protocol Implementation Conformance Statement (PICS) proforma specification for supplementary services";

Part 35: "Test Suite Structure and Test Purposes (TSS&TP) specification for supplementary services";

Part 36: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for supplementary services".

NOTE: Part 13 and 21 to 30 have not been issued.

National transposition dates	
Date of adoption of this EN:	1 September 2000
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Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 June 2001
Date of withdrawal of any conflicting National Standard (dow):	30 June 2001

1 Scope

The present document presents the test suite structure and test purposes (TSS&TP) for ISUP v3 supplementary services defined in [1] to [21]. The present document applies only to exchanges having implemented the ISUP v3 protocol specification. It is applicable for validation testing of all types of exchanges as defined in the ISUP v3 protocol specification. The present document does not deal with compatibility testing. The main text part of the present document presents the requirements regarding the chosen test method, conventions used within the ATS, the Test Suite Structure and Test Purposes (TSS&TP) for ISUP v3 supplementary services.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

[1] ISO/IEC 9646-1 (1994): "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 1: General concepts".

[2] ISO/IEC 9646-3 (1996): "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 3: The Tree and Tabular Combined Notation (TTCN)".

[3] ISO/IEC 9646-7 (1994): "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 7: Implementation Conformance Statements".

[4] ETSI EN 300 008-1 (V1.3): "Integrated Services Digital Network (ISDN); Signalling System No.7; Message Transfer Part (MTP) to support international interconnection; Part 1: Protocol specification [ITU-T Recommendations Q.701, Q.702, Q.703, Q.704, Q.705, Q.706, Q.707 and Q.708 modified]".

[5] ETSI EN 300 356-1 (V3.2): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 1: Basic services [ITU-T Recommendations Q.761 to Q.764 (1997), modified]".

[6] ETSI EN 300 356-3 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 3: Calling Line Identification Presentation (CLIP) supplementary service [ITU-T Recommendation Q.731, clause 3 (1993), modified]".

[7] ETSI EN 300 356-4 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 4: Calling Line Identification Restriction (CLIR) supplementary service [ITU-T Recommendation Q.731, clause 4 (1993), modified]".

[8] ETSI EN 300 356-5 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 5: Connected Line Identification Presentation (COLP) supplementary service [ITU-T Recommendation Q.731, clause 5 (1993), modified]".

[9] ETSI EN 300 356-6 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 6: Connected Line Identification Restriction (COLR) supplementary service [ITU-T Recommendation Q.731, clause 6 (1993), modified]".

[10] ETSI EN 300 356-7 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 7: Terminal Portability (TP) supplementary service [ITU-T Recommendation Q.733, clause 4 (1993), modified]".

[11] ETSI EN 300 356-8 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 8: User-to-User Signalling (UUS) supplementary service [ITU-T Recommendation Q.737, clause 1 (1997), modified]".

[12] ETSI EN 300 356-9 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 9: Closed User Group (CUG) supplementary service [ITU-T Recommendation Q.735, clause 1 (1993), modified]".

[13] ETSI EN 300 356-10 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 10: Subaddressing (SUB) supplementary service [ITU-T Recommendation Q.731, clause 8 (1992), modified]".

[14] ETSI EN 300 356-11 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 11: Malicious Call Identification (MCID) supplementary service [ITU-T Recommendation Q.731, clause 7 (1997), modified]".

[15] ETSI EN 300 356-12 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 12: Conference Call, add-on (CONF) supplementary service [ITU-T Recommendation Q.734, clause 1 (1993), modified]".

[16] ETSI EN 300 356-14 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 14: Explicit Call Transfer (ECT) supplementary service [ITU-T Recommendation Q.732, clause 7 (1996), modified]".

[17] ETSI EN 300 356-15 (V3.2): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 15: Diversion supplementary services [ITU-T Recommendation Q.732, clauses 2 to 5 (1997), modified]".

[18] ETSI EN 300 356-16 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 16: Call Hold (HOLD) supplementary service [ITU-T Recommendation Q.733, clause 2 (1993), modified]".

[19] ETSI EN 300 356-17 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 17: Call Waiting (CW) supplementary service [ITU-T Recommendation Q.733, clause 1 (1992), modified]".

[20] ETSI EN 300 356-18 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 18: Completion of Calls to Busy Subscriber (CCBS) supplementary service [ITU-T Recommendation Q.733, clause 3 (1997), modified]".

[21] ETSI EN 300 356-19 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 19: Three-Party (3PTY) supplementary service [ITU-T Recommendation Q.734, clause 2 (1996), modified]".

[22] ETSI EN 300 356-20 (V3.2): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 20: Completion of Calls on No Reply (CCNR) supplementary service".

[23] CCITT Recommendation Q.707 (1988): "Testing and maintenance".

[24] ITU-T Recommendation Q.730 (1997): "ISDN User Part supplementary services".

[25] ITU-T Recommendation Q.731 (1993): "Stage 3 description for number identification supplementary services using Signalling System No. 7".

[26] ITU-T Recommendation Q.731.1 (1996): "Stage 3 description for number identification supplementary services using Signalling System No. 7; Direct-dialling-in (DDI)".

[27] ITU-T Recommendation Q.732.2: "Stage 3 description for call offering supplementary services using Signalling System No. 7: Call diversion services: call forwarding, call forwarding no reply, call forwarding unconditional, call deflection".

[28] ITU-T Recommendation Q.733.5 (1999): "Signalling System No. 7 - Completion of calls on no reply".

[29] ITU-T Recommendation Q.734.1 (1993): "Stage 3 description for multiparty supplementary services using Signalling System No. 7: Conference calling".

[30] ITU-T Recommendation Q.735.1 (1993): "Stage 3 description for community of interest supplementary services using Signalling System No. 7: Closed user group".

[31] ITU-T Recommendation Q.735.3 (1993): "Stage 3 description for community of interest supplementary services using Signalling System No. 7; Multi-level precedence and preemption (MLPP)".

[32] ITU-T Recommendation Q.735.6 (1996): "Stage 3 description for community of interest supplementary services using Signalling System No. 7; Global Virtual Network Service (GVNS)".

[33] ITU-T Recommendation Q.737 (1993): "Stage 3 description for additional information transfer supplementary services using Signalling System No. 7".

[34] ETSI EN 300 356-34 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 34: Protocol Implementation Conformance Statement (PICS) proforma specification for supplementary services".

[35] ETSI EN 300 356-36: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 36: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for supplementary services".

[36] ITU-T Recommendation E.164 (1997): "The international public telecommunication numbering plan".

[37] ITU-T Recommendation Q.784.1 (1996): "ISUP basic call test specification: Validation and compatibility for ISUP'92 and Q.767 protocols".

[38] ITU-T Recommendation Q.788 (1997): "User-network-interface to user-network-interface compatibility test specifications for ISDN, non-ISDN and undetermined accesses interworking over international ISUP".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

- terms defined in ISDN User Part (ISUP) reference specification [4] to [33];
- terms defined in ISO/IEC 9646-1 [1], ISO/IEC 9646-3 [2] and in ISO/IEC 9646-7 [3].

In particular, the following terms apply:

Abstract Test Case (ATC): complete and independent specification of the actions required to achieve a specific test purpose, defined at the level of abstraction of a particular Abstract Test Method, starting in a stable testing state and ending in a stable testing state (see ISO/IEC 9646-1 [1], subclause 3.3.3).

Abstract Test Method (ATM): description of how an IUT is to be tested, given at an appropriate level of abstraction to make the description independent of any particular realization of a Means of Testing, but with enough detail to enable abstract test cases to be specified for this method (see ISO/IEC 9646-1 [1], subclause 3.3.5).

Abstract Test Suite (ATS): test suite composed of abstract test cases (see ISO/IEC 9646-1 [1], subclause 3.3.6).

Implementation Under Test (IUT): implementation of one or more OSI protocols in an adjacent user/provider relationship, being part of a real open system which is to be studied by testing (see ISO/IEC 9646-1 [1], subclause 3.3.43).

ISDN number: number conforming to the numbering and structure specified in ITU-T Recommendation E.164 [36].

Means of Testing (MOT): combination of equipment and procedures that can perform the derivation, selection, parameterization and execution of test cases, in conformance with a reference standardized ATS, and can produce a conformance log (see ISO/IEC 9646-1 [1], subclause 3.3.54).

PICS proforma: document in the form of a questionnaire, which when completed for an implementation or system becomes the PICS.

PIXIT proforma: document in the form of a questionnaire, which when completed for the IUT becomes the PIXIT.

Point of Control and Observation: point within a testing environment where the occurrence of test events is to be controlled and observed, as defined in an Abstract Test Method (see ISO/IEC 9646-1 [1], subclause 3.3.64).

Pre-test condition: setting or state in the IUT which cannot be achieved by providing stimulus from the test environment.

Protocol Implementation Conformance Statement (PICS): statement made by the supplier of a protocol claimed to conform to a given specification, stating which capabilities have been implemented (see ISO/IEC 9646-1 [1], subclause 3.3.39 and subclause 3.3.80).

Protocol Implementation eXtra Information for Testing (PIXIT): statement made by a supplier or implementor of an IUT (protocol) which contains or references all of the information related to the IUT and its testing environment, which will enable the test laboratory to run an appropriate test suite against the IUT (see ISO/IEC 9646-1 [1], subclause 3.3.41 and subclause 3.3.81).

System Under Test (SUT): real open system in which the IUT resides (see ISO/IEC 9646-1 [1], subclause 3.3.103).

User: access protocol entity at the User side of the user-network interface where a T reference point or coincident S and T reference point applies.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

3PTY	Three Party service
ASE	Application Service Entity
ASP	Abstract Service Primitive
ATC	Abstract Test Case
ATM	Abstract Test Method
ATS	Abstract Test Suite
CCBS	Completion of Calls to Busy Subscriber
CD	Call Deflection
CDIV	Call DIVersion
CFB	Call Forwarding Busy
CFNR	Call Forwarding No Reply
CFU	Call Forwarding Unconditional
CLI	Calling Line Identity
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
COL	Connected Line Identity
COLP	Connected Line Identification Presentation
COLR	Connected Line Identification Restriction
CONF	Conference call, add-on

CUG	Closed User Group
CW	Call Waiting
DDI	Direct Dialling-In
DLE	Destination Local Exchange
DSS1	Digital Subscriber System No. 1
ECT	Explicit Call Transfer
HOLD	Call Hold
IncIE	Incoming International Exchange
IntermE	Intermediate Exchange
ISC	International Switching Centre
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
ITE	International Transit Exchange
IUT	Implementation Under Test
IWorkE	Interworking Exchange
LAPD	Link Access Protocol for the D-channel
LT	Lower Tester
MCID	Malicious Call Identification
MOT	Means Of Testing
MSN	Multiple Subscriber Number
MTC	Main Test Component
MTP	Message Transfer Part
NNI	Network-network interface
NTE	National Transit Exchange
OLE	Originating Local Exchange
OutIE	Outgoing International Exchange
PCO	Point of Control and Observation
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
PSTN	Public Switched Telephone Network
SP	Signalling Point
SUB	Sub-addressing
SUT	System Under Test
TCAP	Transaction Capabilities Application Part
TCP	Test Coordination Procedures
TP	Terminal portability
TP	Test Purpose (context dependent)
TSS	Test Suite Structure
TTCN	Tree and Tabular Combined Notation
UNI	User-network interface
UT	Upper Tester
UUS	User-to-user signalling
UUS1	User-to-user signalling service 1
UUS2	User-to-user signalling service 2
UUS3	User-to-user signalling service 3

The ISUP message acronyms can be found in table 2 of ITU-T Recommendation Q.762 as endorsed by EN 300 356-1 [5].

3.2.1 ISUP abbreviations

The following abbreviations apply for ISUP parameters and parameter values.

ACH	Access signalling PCO (D-channel)
APH	Access physical circuit PCO (B-channel)
addCgPN	additional Calling Party Number
addConNb	additional Connected Number
AdSg	Address Signals
APRI	Address Presentation Restricted Indicator
ATP	Access Transport Parameter
BCI	Backward Call Indicators

CAB	PCO for AB circuits
CAC	PCO for AC circuits
CC	Country Code
CCBSpar	CCBS parameter
CDInf	Call Diversion Information
CDmo	Call Diversion may occur
CdPSI	Called Party's Status Indicator
CgPN	Calling Party Number
CHInf	Call History Information
ConNb	Connected Number
CTNb	Call Transfer Number
CTRef	Call Transfer Reference
CUGIC	CUG Interlock Code
FCI	Forward Call Indicators
GenNb	Generic Number
GenNot	Generic Notification
IA	Incoming Access
ICB	Incoming Calls Barred
IPI	ISUP Preference Indicator
LAB	PCO for signalling link AB
LAC	PCO for signalling link AC
LOPInd	LOop Prevention Indicators
NoInd	No Indication
NSO	Notification Subscription Option
OA	Outgoing Access
OBCI	Optional Backward Call Indicators
OFCI	Optional Forward Call Indicators
OriCdNb	Original Called Number
PDC	Propagation Delay Counter
PTC	Parallel Test Component
RgInd	Redirecting Indicator
RgNb	Redirecting Number
RnCnt	Redirection Counter
RnInf	Redirection Information
RnNb	Redirection Number
RnNbRes	Redirection Number Restriction
RnReas	Redirection Reason
ScrI	Screening Indicator
ServAct	Service Activation
USI	User Service Information
USIp	User Service Information prime
UUInd	User-to-User Indicators
UUInf	User-to-User Information

4 Implementation under test and test methods

4.1 Identification of the system and implementation under test

The System Under Test (SUT) is an exchange. The implementation under test (IUT) is the ISUP v3 implementation in this exchange, mainly the part responsible for the supplementary services functionality, as shown in figure 1.

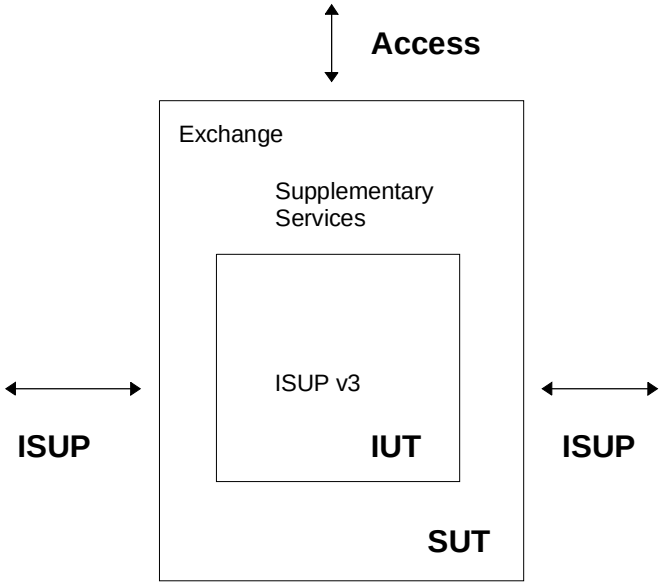


Figure 1: System Under Test

The ISUP signalling protocol can be observed on the SS No. 7 link on the Network-Network Interface (NNI). The effects of signalling procedures of the ISDN User Part can be observed on the circuits controlled by the ISUP on the NNI.

The ISUP implementation will in some exchanges have to interwork with the Access signalling system on the user-network interface (UNI) and involve call handling in order to establish end-to-end connections.

From the ISUP reference standard several types of exchanges (or roles) can be identified as presented in figure 2.

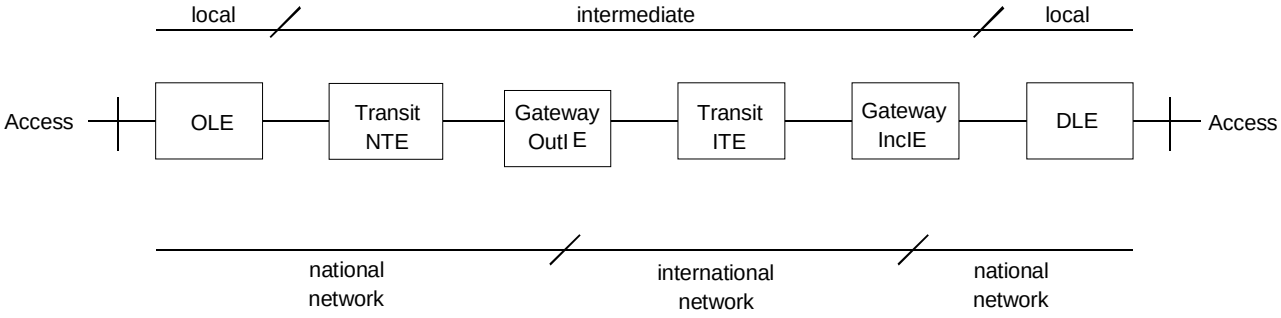


Figure 2: Roles of exchanges

The exchanges can be divided into two main groups according to their functionality: local exchanges, where calls originate and terminate, and intermediate exchanges, with transit functionality. Local exchanges are national, i.e. belong to a national network. Intermediate exchanges are national or international. The international intermediate exchanges which permit access to the international network are the gateway exchanges (incoming and outgoing), also called ISCs (International Switching Centres). A particularity for some supplementary services, e.g. call diversion services, is that a local exchange is not only originator/terminator of the call but also mediator between two far-end local exchanges. The roles of the exchanges are summarized in table 1.

Table 1: Roles of exchanges

	Local Exchange	Intermediate Exchange	
		National	International
Originating Local Exchange	OLE		
Transit Exchange		NTE	ITE
Incoming/Gateway Exchange			IncIE
Outgoing/Gateway Exchange			OutIE
Destination Local Exchange	DLE		

4.2 ATM and testing configuration for ISUP v3

The Abstract Test Method (ATM) chosen for the ISUP v3 supplementary services testing specification is the distributed multi-party test method. The ATM is defined at an appropriate level of abstraction so that the test cases may be specified appropriately, without adding restrictions to the implementation under test. The testing architectures are described in the following subclauses.

The ATS is written in concurrent TTCN.

4.2.1 Intermediate exchanges

The configuration proposed for testing intermediate exchanges is shown in figure 3. In order to test the protocol and functionality of transit and gateway exchanges one needs to consider the incoming and outgoing side of the SUT.

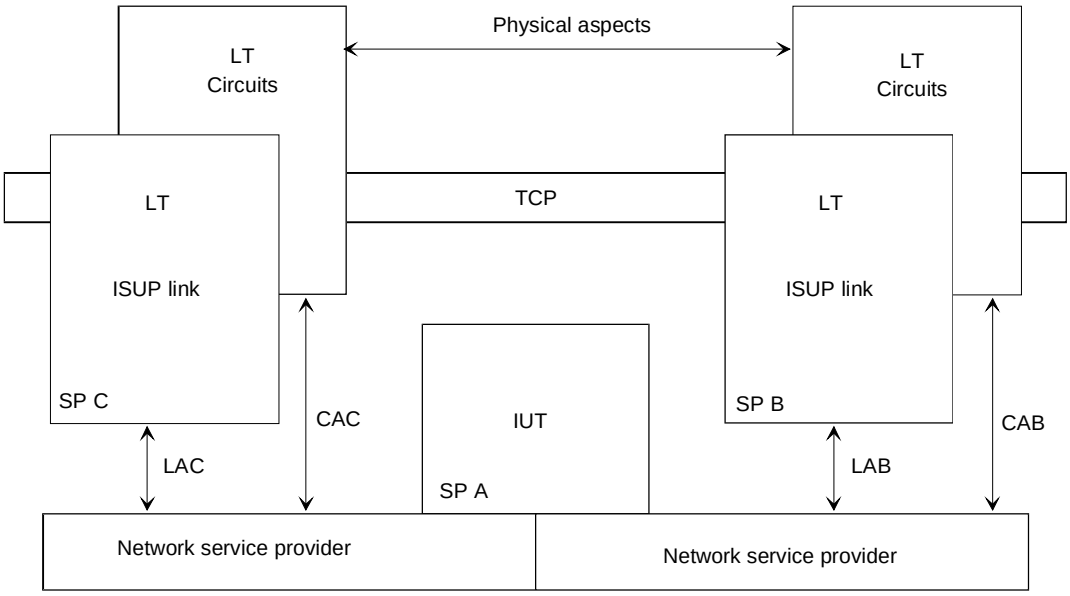


Figure 3: ISUP test method for intermediate exchanges

The IUT is observed and controlled from two signalling links with ISUP associated circuits. The points of control and observation (PCO) are labelled LAB and CAB on one side, and LAC and CAC on the other.

The LAB and LAC PCOs are used by the lower testers (LT) for controlling the ISUP signalling link, whereas the CAB and CAC PCOs are used by the lower testers for observing circuit related events, such as connectivity, echo control check, alerting tone, etc.

The ISUP PDUs to be sent and observed on the LAB PCO side allow for PDU constraints to be specified and coded down to the bit level.

The underlying network service provider is the Message Transfer Part (MTP) protocol.

Figure 4 shows the actual used configuration for intermediate exchanges, with a main testing component (MTC), responsible for the A-B interface and a slave parallel testing component (PTC), responsible for the C-A interface.

The test coordination procedures (TCP) allow for communication between the testers. The test components are mostly implicitly coordinated (asynchronously); the TCPs are only used when it is necessary to obtain the verdict from the parallel test component.

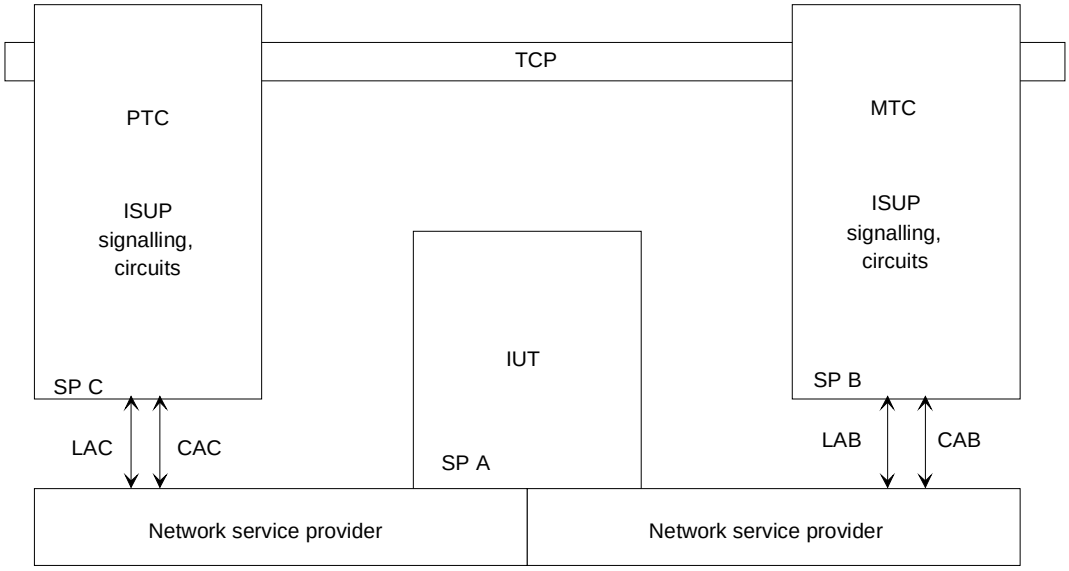


Figure 4: ISUP test configuration for intermediate exchanges

4.2.2 Local exchanges

When testing a local exchange as specified in the reference standard, it is difficult, if not impossible, to observe only ISUP PDUs, if functionality such as connectivity, tones and announcements etc. associated with protocol events is to be considered and used to assign verdicts. The reference standard often refers to actions or events initiated by or to be observed by the calling or called user.

A Point of Control of Observation (PCO) from ISUP (IUT) to the access side is needed, e.g. for stimulating the local exchange to originate a call (send an IAM). Another PCO is needed to check connectivity or generated tones by the local exchange.

There is no exposed interface from ISUP (the IUT) towards the access side. For practical testing purposes the natural choice is the access interface. It is therefore reasonable to make use of the access interface (e.g. the user access interface DSS1) as a PCO and to use existing naming conventions for the abstract service primitives (ASPs) to be used on this PCO.

Figure 5 presents a multi-party testing configuration for local exchanges. In this figure each tester has a single PCO. The PCO for the access uses the underlying access service provider (e.g. LAPD, in case of DSS1) for observing access events and stimulating the ISUP via the access. The ISUP implementation (IUT) cannot be tested without involving the user-network interface (UNI).

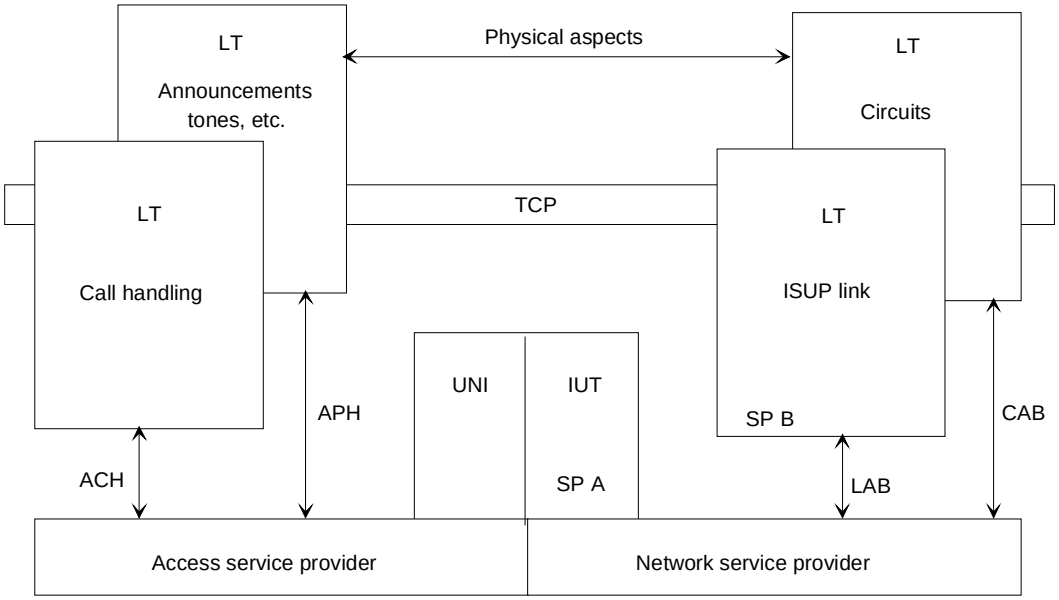


Figure 5: ISUP test method for originating/destination exchanges

On the right side there are two PCOs as in the test configuration presented in the previous subclause. The LAB PCO is used by the LT controlling the ISUP signalling link, whereas the CAB PCO is used by another LT controlling the traffic channels (for observing circuit related events, such as connectivity, alerting tone, etc.).

The ISUP PDUs to be sent and observed on the LAB PCO side allow for PDU constraints to be specified and coded down to the bit level.

On the access side there are two PCOs and two LTs similar to the ones on network side. The ACH PCO is used to observe and control the Call Handling events, whereas the APH is used to control and observe physical aspects (e.g. tones and announcements).

The access PDUs to be sent and observed on the ACH PCO are chosen at an appropriate level of abstraction. For the access ASPs DSS1-like primitive names have been used, whereas access PDU constraints have not been coded to the bit level. The access aspects cannot be left out for local exchanges, widening in this respect to some extent the scope of the ISUP testing.

Figure 6 shows the actual used configuration for local exchanges, with a master testing component (MTC), responsible for the A-B interface and a slave parallel testing component (PTC), responsible for the UNI access interface. The maintenance PCO is integrated in the MTC, for simplifying reasons.

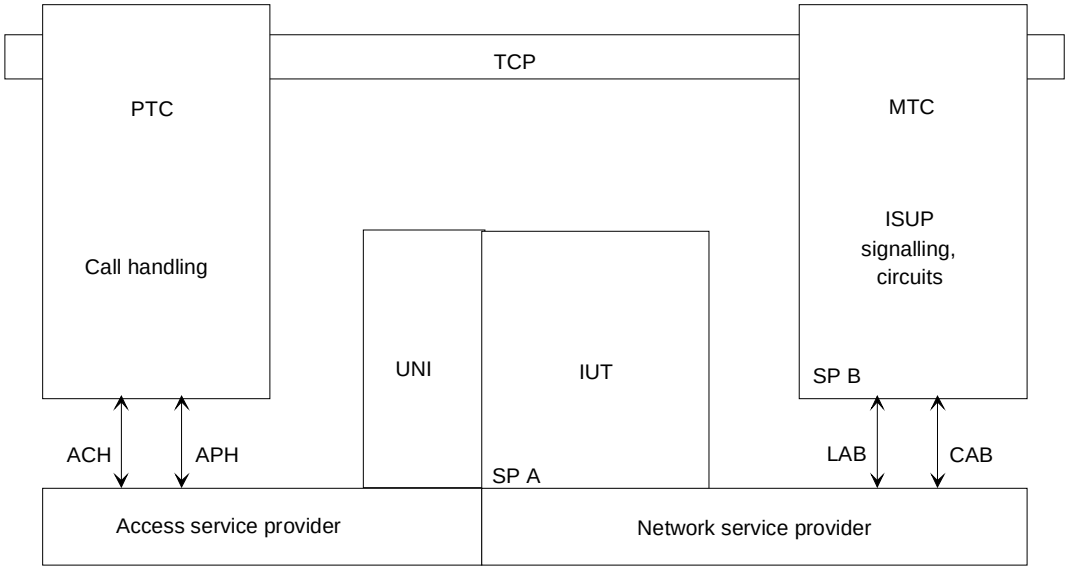


Figure 6: ISUP test configuration for local exchanges

There are test cases for local exchanges for some supplementary services where a mixed configuration is used. This configuration is presented in figure 7 and it may be deduced from the configurations presented in figures 4 and 6.

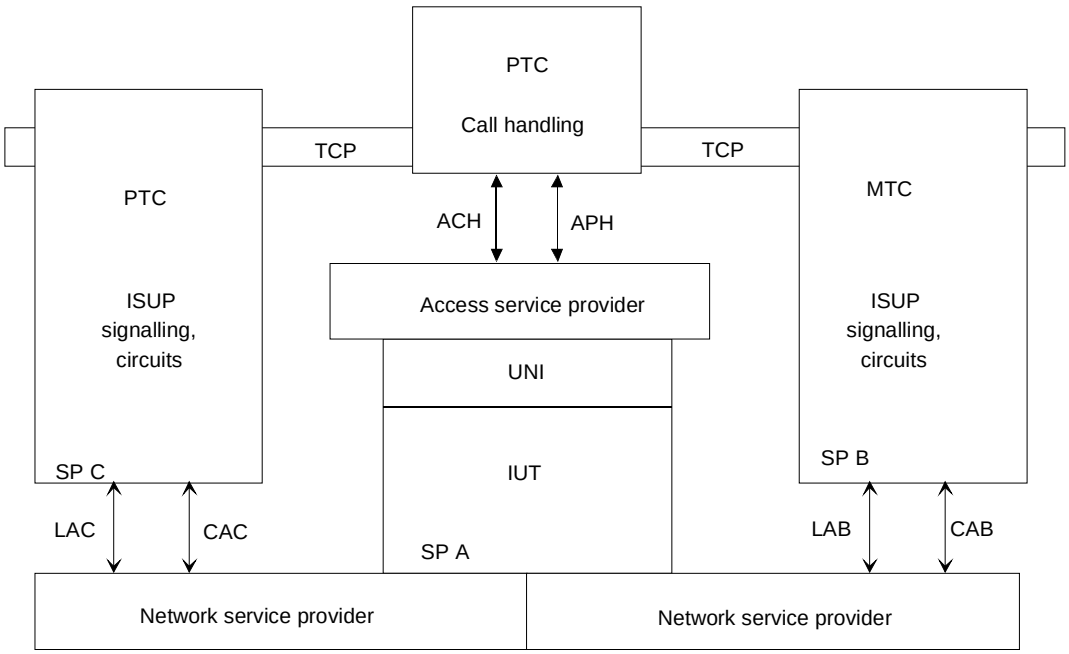


Figure 7: ISUP mixed test configuration for local exchanges

In this configuration the main test component located on the right side supervises two parallel test components: one ISUP PTC and one access PTC. The local exchange in this case is the exchange serving the user who activated the supplementary service.

4.2.3 Master-slave aspects in the test configuration

Figures 4, 6 and 7 show the logical test components of the adopted test configuration. The main test component is located on the right side of the IUT, whereas on the left side there are different parallel test components: ISUP (figure 4), access (figure 6) or both (figure 7).

The ATS is written so that the appropriate configuration is chosen - depending on the exchange's role to be tested.

The right side main test component may be international or national ISUP and is configurable so that any two of these may be run - based on the answers given to PIXIT questions.

The left side parallel test component may be of any kind: it may be international or national ISUP, an access signalling system or a non-ISUP user part. At test execution exactly one of these configurations will be chosen - based on the information provided in the PICS and PIXIT.

For the gateway exchanges it is assumed by default that the call is set up from the left PTC to the right MTC. So for outgoing international exchange the national network is located on the left side and the international network on the right side. For incoming international exchanges the international network is located on the left side and the national network on the right side.

The message flow in the test cases is designed in such a way that the verdict is assigned based on observing the behaviour on the right side. The left side will in this case mainly act as a slave stimulus/acceptor. There are, however, test cases where the expected behaviour of both sides is needed to assign the verdict.

5 Test Suite Structure (TSS)

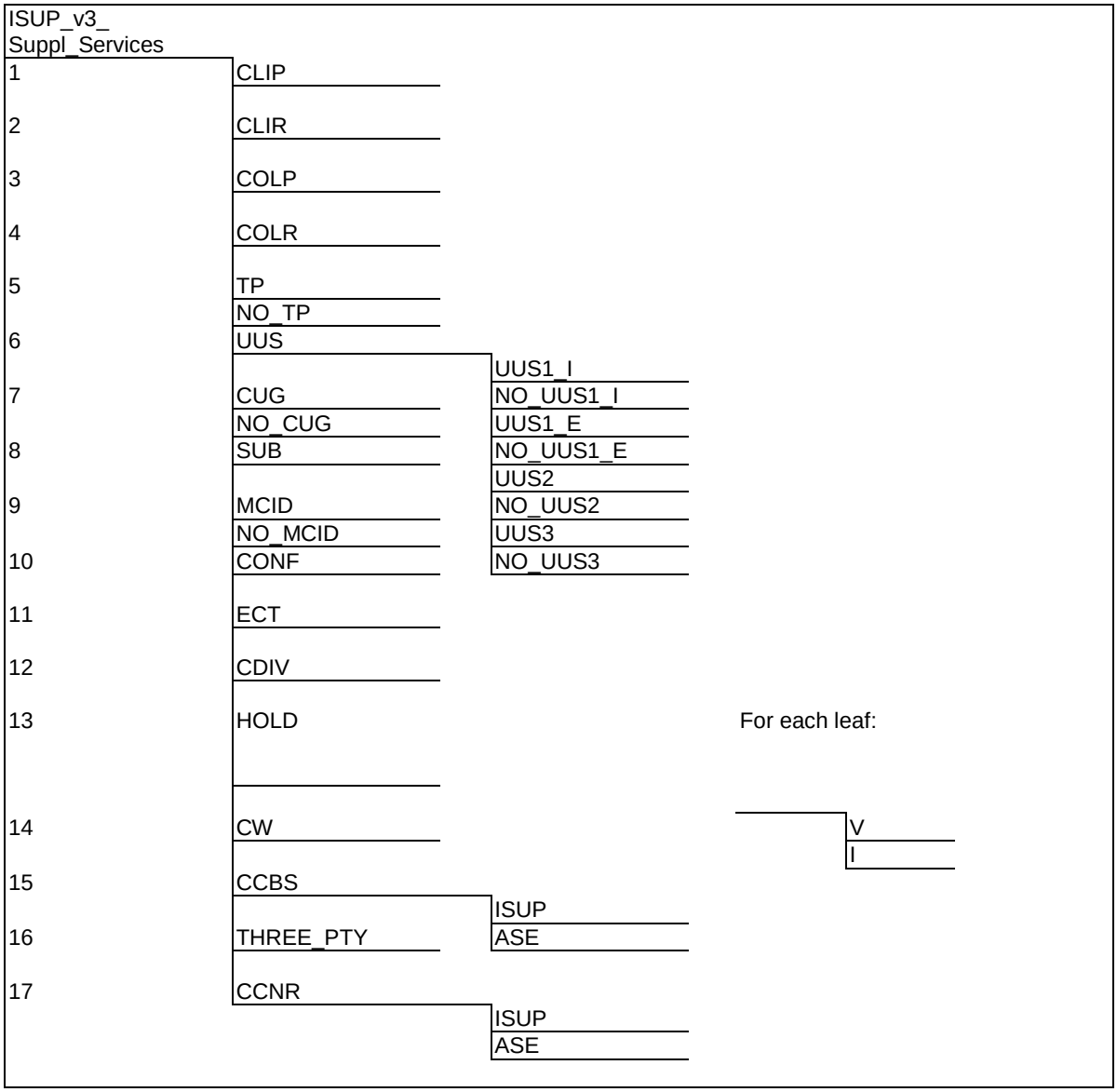


Figure 8: Test suite structure

Test suite structure (TSS) naming conventions are:

CCBS	Completion of Calls to Busy Subscriber
CCBS_ASE	CCBS - Application Service Element
CCBS_ISUP	CCBS - ISUP protocol
CCNR	Completion of Calls No Reply
CCNR_ASE	CCNR - Application Service Element
CCNR_ISUP	CCNR - ISUP protocol
CD	Call Deflection
CDIV	Call Diversion Services
CFB	Call Forwarding Busy
CFNR	Call Forwarding No Reply
CFU	Call Forwarding Unconditional
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
COLP	Connected Line Identification Presentation
COLR	Connected Line Identification Restriction
CONF	Conference Call, add-on

CUG	Closed User Group
CW	Call Waiting
ECT	Explicit Call Transfer
HOLD	Call Hold
I	Inopportune stimulus
MCID	Malicious Call Identification
NO_CUG	Closed User Group not supported
NO_MCID	Malicious Call Identification not supported
NO_TP	Terminal Portability not supported
NO_UUS1_E	User-to-User Signalling service 1 explicit not supported
NO_UUS1_I	User-to-User Signalling service 1 implicit not supported
NO_UUS2	User-to-User Signalling service 2 not supported
NO_UUS3	User-to-User Signalling service 3 not supported
SUB	Sub-addressing
THREE_PTY	Three Party service
TP	Terminal Portability
UUS	User-to-User Signalling
UUS1_E	User-to-User Signalling service 1 explicit
UUS1_I	User-to-User Signalling service 1 implicit
UUS2	User-to-User Signalling service 2
UUS3	User-to-User Signalling service 3
V	Valid behaviour stimulus

6 Test purposes (TP)

6.1 Introduction

For each test requirement a Test Purpose (TP) is defined.

6.1.1 Test purpose (TP) naming convention

Test Purposes are numbered ascending within each group. Groups are organized according to the TSS down to the last but one level. The classification in the V/I groups is done by the inclusion of V or I in the test case name. Additional qualifiers, in form of lower case letters, are added to identify variants within one generic test case, see table 2.

Table 2: TP Identifier naming convention scheme

Identifier:		**ISS_{<TC>}_<group>_<N>_<n>_{<n>}_{<a>}**
ISS	=	ISUP v3 Supplementary Services
{<TC>}	=	Designation used for ASE test cases (e.g. CCBS): TC: Transaction Capabilities
<group>	=	One character representing the test group: V: Valid stimulus I: Inopportune stimulus
<N>	=	Sequence number for supplementary services according to the test suite structure
<n>	=	Sequence number used within the group
{<n>}	=	Optional additional number used (e.g. for UUS)
{<a>}	=	Optional lower-case character distinguishing tests with same reference number

6.1.2 Source of test purpose definition

The test purposes cover validation testing aspects and were developed within ETSI.

6.1.3 Test purpose structure

The test purpose structure overlaps with the Test Suite Structure (TSS).

Test purposes that test normal behaviour have been grouped in the V - valid behaviour group.

Test purposes that test the IUT behaviour in situations that are not normal operation have been grouped in the I - Inopportune stimulus group.

Test purposes for the Application Service Entity (ASE) defined for some supplementary services (e.g. CCBS) have been marked with the TC designation - Transaction capabilities.

6.2 Test purposes for the supplementary services

All of the following test purposes belong to the main group ISUP_v3_Suppl_Services. Each test purpose is presented in a separate table. The first row of the table contains the following items:

TSS	Identifier in the test suite structure (test group/subgroup identifier);
TP	Identifier of the test purpose;
ISUP v3 reference	The reference to the requirement in the ISUP standards [5] to [21], [24], [26] to [27] and [31] to [32] which led to the test purpose;
Selection expression	Selection criterion for the test purpose taking into account the exchange's role and the answers to the specified PICS questions. If the PICS questions refer to features of the Basic call control procedures (see ITU-T Recommendation Q.784.1 [37]) they are preceded by the identifier "BCall". All other PICS questions refer to supplementary services specific features (see annex A). If there is no selection expression specified, the TP is valid for all roles of exchanges;
Q.788 [38] reference	If there is a test purpose defined in the ITU-T Recommendation Q.788 [38] which covers the expected behaviour of the below defined test purpose, then the reference to that test is given here. Because the test purposes defined in ITU-T Recommendation Q.788 [38] describe UNI (user-network interface) to UNI end-to-end tests it is possible that one single ITU-T Recommendation Q.788 [38] test is referenced by several test purposes in this test specification. Besides that, some defined test purposes do not have any reference to ITU-T Recommendation Q.788 [38] and therefore the word "None" is used in the ITU-T Recommendation Q.788 [38] reference box.

The next row defines the test purpose itself, each having a *title* in *italics* and a text body.

The ISUP **messages** and **parameter** names are highlighted **bold** to ease the readability.

In order to check the specified behaviour for some test purposes, a special prerequisite test condition has to be fulfilled. If such a condition is needed, it is presented after the test purpose under the heading "Pre-test conditions".

For each test purpose the essential part of the message sequence chart is presented. If there are several scenarios of message sequence charts implied by the test purpose, the variants are presented distinguishing the different cases. These message sequence charts are presented using a fixed pitch font for the proper alignment of the arrows in the diagram. Inside the message sequence charts comments are included for clarification purposes.

Additional information of interest while executing/implementing the test cases is presented below a continuous line after the message sequence charts.

6.2.1 Calling line identification presentation (CLIP)

TSS CLIP/	TP ISS_V_1_1	ISUP'97 reference 3.5.2.1.1; Table 3.1/Q.731 [25]	Selection expression OLE	Q.788 [38] reference 2.1.1
Test purpose *Calling party number (network provided)* To verify that the IUT can successfully originate a call having a **calling party number** with the screening indicator set to "network provided" and the presentation restricted indicator set to "presentation allowed".				
access SPA SPB ------setup-----> -------IAM------>				
1. Set up a call from the access without calling party number or invalid calling party number (not accepted by the network).				

TSS CLIP/	TP ISS_V_1_2	ISUP'97 reference 3.5.2.1.1; Table 3.1/Q.731 [25]	Selection expression OLE AND PICS A.3/8 (SUB)	Q.788 [38] reference 2.1.2
Test purpose *Calling party number (network provided) with calling sub-address* To verify that the IUT can successfully originate a call having a **calling party number** with the screening indicator set to "network provided" and an **access transport** parameter containing the calling sub-address. Pre-test conditions Arrange the data in the IUT so that the calling party has subscribed to the sub-addressing supplementary service.				
access SPA SPB ------setup-----> -------IAM------>				
1. Set up a call from the access without calling party number or wrong calling party number (not accepted by the network) and with a calling sub-address.				

TSS CLIP/	TP ISS_V_1_3	ISUP'97 reference 3.5.2.1.1; Table 3.1/Q.731 [25]	Selection expression OLE	Q.788 [38] reference None
Test purpose *Calling party number (user provided, verified and passed)* To verify that the IUT can successfully originate a call having the **calling party number** with the screening indicator set to "user provided, verified and passed".				
access SPA SPB ------setup-----> -------IAM------>				
1. Set up a call from the access with a correct calling party number (within range).				

TSS CLIP/	TP ISS_V_1_4	ISUP'97 reference 3.5.2.1.1; Table 3.1/Q.731 [25]	Selection expression OLE AND PICS A.3/8 (SUB)	Q.788 [38] reference 2.1.3
Test purpose *Calling party number (user provided, verified and passed) with calling sub-address* To verify that the IUT can successfully originate a call having a **calling party number** with the screening indicator set to "user provided, verified and passed" and an **access transport** parameter containing the calling sub-address. Pre-test conditions Arrange the data in the IUT so that the calling party has subscribed to the sub-addressing supplementary service.				
access SPA SPB ------setup-----> -------IAM------>				
1. Set up a call from the access with a correct calling party number (within range) and with a calling sub-address.				

TSS CLIP/	TP ISS_V_1_5	ISUP'97 reference 3.5.2.1.1; Table 3.1/Q.731 [25]	Selection expression OLE	Q.788 [38] reference None
Test purpose *Calling party number (user provided, not verified)* To verify that the IUT can successfully originate a call having a default **calling party number** with the screening indicator set to "network provided" and a **generic number** containing the additional calling party number with the screening indicator set to "user provided, not verified". Pre-test conditions Arrange the data in the IUT so that there is a special arrangement from the access signalling system regarding an additional calling party number.				
access SPA SPB ------setup-----> -------IAM------>				
1. Set up a call from the access with a special calling party number.				

TSS CLIP/	TP ISS_V_1_6	ISUP'97 reference 3.5.2.1.1; Table 3.1/Q.731 [25]	Selection expression OLE AND PICS A.3/8 (SUB)	Q.788 [38] reference 2.1.4
Test purpose *Calling party number (user provided, not verified) with calling sub-address* To verify that the IUT can successfully originate a call having a default **calling party number** with the screening indicator set to "network provided", a **generic number** containing the additional calling party number with the screening indicator set to "user provided, not verified" and an **access transport** parameter containing the calling sub-address. Pre-test conditions Arrange the data in IUT so that there is a special arrangement from the access signalling system regarding an additional calling party number and that the calling party has subscribed to the sub-addressing supplementary service.				
access SPA SPB ------setup-----> -------IAM------>				
1. Set up a call from the access with a special calling party number and a calling sub-address.				

TSS CLIP/	TP ISS_V_1_7	ISUP'97 reference 3.4; 3.5.2.2.1/Q.731 [25]	Selection expression Transit	Q.788 [38] reference None
Test purpose *Passing on the calling party number and the generic number* To verify that a **calling party number** and additional calling party number in the **generic number** can be successfully transferred to the succeeding exchange.				
Case a) SPC SPA SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters. 2. CgPN only.				
Case b) SPC SPA SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters. 2. CgPN and addCgPN in GenNb.				

TSS CLIP/	TP ISS_V_1_8	ISUP'97 reference 3.5.2.3.1/Q.731 [25]	Selection expression OutIE AND PICS A.4/1	Q.788 [38] reference None
Test purpose *Discarding the calling party number in case of bilateral agreements* To verify that the **calling party number** is discarded in case of bilateral agreements, if the address presentation restricted indicator is set to "presentation allowed".				
NOTE: This bilateral agreement prohibits the transferral of the calling party number in any case. The test with the address presentation restricted indicator set to "presentation restricted" is a CLIR test.				
Pre-test conditions Arrange the data in IUT so that the calling party number is discarded.				
SPC SPA SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters.				

TSS CLIP/	TP ISS_V_1_9	ISUP'97 reference 3.5.2.3.1/Q.731 [25]	Selection expression OutIE AND PICS A.4/2	Q.788 [38] reference None
Test purpose *Discarding the additional calling party number in case of bilateral agreements* To verify that the additional calling party number in the **generic number** is discarded in case of bilateral agreements, if the address presentation restricted indicator is set to "presentation allowed".				
NOTE: This bilateral agreement prohibits the transferral of the calling party number in any case. The test with the address presentation restricted indicator set to "presentation restricted" is a CLIR test.				
Pre-test conditions Arrange the data in IUT so that the additional calling party number in the generic number is discarded.				
SPC SPA SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters.				

TSS CLIP/	TP ISS_V_1_10	ISUP'97 reference 3.5.2.3.1/Q.731 [25]	Selection expression OutIE	Q.788 [38] reference None
Test purpose *Discarding the calling party number, if the address is marked not available* To verify that the **calling party number** is omitted, if the address presentation restricted indicator is set to "address not available".				
SPC SPA SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters.				

TSS CLIP/	TP ISS_V_1_11	ISUP'97 reference 3.5.2.3.1/Q.731 [25]	Selection expression OutIE	Q.788 [38] reference None
Test purpose *Discarding the additional calling party number, if no calling party number is received* To verify that if the **calling party number** is not sent, then an additional calling party number in a **generic number** will be omitted.				
SPC SPA SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters.				

TSS CLIP/	TP ISS_V_1_12	ISUP'97 reference 3.5.2.3.1/Q.731 [25]	Selection expression OutIE	Q.788 [38] reference None
Test purpose *Converting the calling party number to international format* To verify that the IUT can convert the **calling party number** into an international number, setting the nature of address indicator to "international number" and can pass on the address presentation restricted indicator and the screening indicator transparently.				
SPC SPA SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters.				

TSS CLIP/	TP ISS_V_1_13	ISUP'97 reference 3.5.2.3.1/Q.731 [25]	Selection expression OutIE	Q.788 [38] reference None
Test purpose *Converting the additional calling party number to international format* To verify that the IUT can convert the additional calling party number in the **generic number** into an international number, if the numbering plan indicator is "ISDN Telephony", setting the nature of address indicator to "international number" and can pass on the address presentation restricted indicator and the screening indicator transparently.				
SPC SPA SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters.				

TSS CLIP/	TP ISS_I_1_14	ISUP'97 reference 3.5.2.3.2/Q.731 [25]	Selection expression OutIE	Q.788 [38] reference None
Test purpose *Discarding an incomplete calling party number* To verify that the **calling party number** is discarded, if it is received with the calling party number incomplete indicator set to "incomplete".				
SPC SPA SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters.				

TSS CLIP/	TP ISS_V_1_15	ISUP'97 reference 3.5.2.4.1/Q.731 [25]	Selection expression IncIE	Q.788 [38] reference None
Test purpose *Converting the calling party number to national format, if necessary* To verify that the country code in the address signals of the **calling party number** is removed if it is the network's own country code. The nature of address indicator shall be set to "national (significant) number". The address presentation restricted indicator shall be transferred transparently.				
SPC International SPA National SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters.				

TSS CLIP/	TP ISS_V_1_16	ISUP'97 reference 3.5.2.4.1/Q.731 [25]	Selection expression IncIE	Q.788 [38] reference None
Test purpose *Converting the additional calling party number to national format, if necessary* To verify that the country code in the address signals of the **generic number** coded as an "additional calling party number", if the numbering plan indicator is "ISDN Telephony" is removed if it is the network's own country code. The nature of address indicator shall be set to "national (significant) number". The address presentation restricted indicator shall be transferred transparently.				
SPC SPA SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters.				

TSS CLIP/	TP ISS_I_1_17	ISUP'97 reference 3.5.2.4.1/Q.731 [25]	Selection expression IncIE AND PICS A.4/4	Q.788 [38] reference None
Test purpose *Adding a prefix to an international calling party number* To verify that a prefix is added to the **calling party number** and the nature of address indicator is set to "unknown".				
NOTE: The coding "unknown" is a national option (@).				
SPC SPA SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters.				

TSS CLIP/	TP ISS_I_1_18	ISUP'97 reference 3.5.2.4.2/Q.731 [25]	Selection expression IncIE AND PICS A.4/5	Q.788 [38] reference None
Test purpose *Handling of address presentation restricted indicator set to "address not available"* To verify that the screening indicator shall be set to "network provided" if the address presentation restricted indicator in **calling party number** is set to "address not available".				
NOTE: The coding "address not available" is a national option (@).				
SPC SPA SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters.				

TSS CLIP/	TP ISS_V_1_19	ISUP'97 reference 3.6.10.1/Q.731 [25]	Selection expression DLE AND (PICS A.3/12 OR PICS A.3/13 OR PICS A.3/14 OR PICS A.3/15)	Q.788 [38] reference None
Test purpose *CLIP - interaction with call diversions* To verify that a call diverting exchange shall also forward the **calling party number** and the **generic number** containing the additional calling party number. Pre-test conditions Arrange the data in the IUT such that the called user has subscribed to CLIP and has activated a call diversion service (CFB, CFNR, CFU or CD).				
SPC SPA SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters.				

6.2.2 Calling line identification restriction (CLIR)

TSS CLIR/	TP ISS_V_2_1	ISUP'97 reference 4.5.2.1.1/Q.731 [25]	Selection expression OLE	Q.788 [38] reference 2.1.5
Test purpose *Restricted calling party number (network provided)* To verify that the IUT can successfully originate a call having a **calling party number** with the screening indicator set to "network provided" and the address presentation restricted indicator set to "presentation restricted". Pre-test conditions Arrange the data in the IUT so that the calling party has subscribed CLIR.				
access SPA SPB ------setup-----> -------IAM------>				
1. Set up a call from the access without calling party number or wrong calling party number (not accepted by the network).				

TSS CLIR/	TP ISS_V_2_2	ISUP'97 reference 4.5.2.1.1/Q.731 [25]	Selection expression OLE AND PICS A.3/8 (SUB)	Q.788 [38] reference 2.1.6
Test purpose *Restricted calling party number (network provided) with calling sub-address* To verify that the IUT can successfully originate a call having a **calling party number** with the screening indicator set to "network provided", the address presentation restricted indicator set to "presentation restricted" and an **access transport** parameter containing the calling sub-address. Pre-test conditions Arrange the data in the IUT so that the calling party has subscribed to CLIR and SUB.				
access SPA SPB ------setup-----> -------IAM------>				
1. Set up a call from the access without calling party number or wrong calling party number (not accepted by the network) and with a calling sub-address.				

TSS CLIR/	TP ISS_V_2_3	ISUP'97 reference 4.5.2.1.1/Q.731 [25]	Selection expression OLE	Q.788 [38] reference None
Test purpose *Restricted calling party number (user provided, verified and passed)* To verify that the IUT can successfully originate a call having the **calling party number** with the screening indicator set to "user provided, verified and passed" and the address presentation restricted indicator set to "presentation restricted". Pre-test conditions Arrange the data in the IUT so that the calling party has subscribed CLIR.				
access SPA SPB ------setup-----> -------IAM------>				
1. Set up a call from the access with a correct calling party number (within range).				

TSS CLIR/	TP ISS_V_2_4	ISUP'97 reference 4.5.2.1.1/Q.731 [25]	Selection expression OLE AND PICS A.3/8 (SUB)	Q.788 [38] reference 2.1.7
Test purpose *Restricted calling party number (user provided, verified and passed) with calling sub-address* To verify that the IUT can successfully originate a call having a **calling party number** with the screening indicator set to "user provided, verified and passed", the address presentation restricted indicator set to "presentation restricted" and an **access transport** parameter containing the calling sub-address. Pre-test conditions Arrange the data in the IUT so that the calling party has subscribed to CLIR and SUB.				
access SPA SPB ------setup-----> -------IAM------>				
1. Set up a call from the access with a correct calling party number (within range) and with a calling sub-address.				

TSS CLIR/	TP ISS_V_2_5	ISUP'97 reference 4.5.2.1.1/Q.731 [25]	Selection expression OLE	Q.788 [38] reference None
Test purpose *Restricted calling party number (user provided, not verified)* To verify that the IUT can successfully originate a call having a default **calling party number** with the screening indicator set to "network provided" and a **generic number** containing the additional calling party number with the screening indicator set to "user provided, not verified", both having the address presentation restricted indicator set to "presentation restricted". Pre-test conditions Arrange the data in IUT so that there is a special arrangement from the access signalling system regarding an additional calling party number and that the calling party has subscribed to CLIR.				
access SPA SPB ------setup-----> -------IAM------>				
1. Set up a call from the access with a special calling party number.				

TSS CLIR/	TP ISS_V_2_6	ISUP'97 reference 4.5.2.1.1/Q.731 [25]	Selection expression OLE AND PICS A.3/8 (SUB)	Q.788 [38] reference 2.1.8
Test purpose *Restricted calling party number (user provided, not verified) with calling sub-address* To verify that the IUT can successfully originate a call having a default **calling party number** with the screening indicator set to "network provided", a **generic number** containing the additional calling party number with the screening indicator set to "user provided, not verified", both having the address presentation restricted indicator set to "presentation restricted" and an **access transport** parameter containing the calling sub-address. Pre-test conditions Arrange the data in IUT so that there is a special arrangement from the access signalling system regarding an additional calling party number and that the calling party has subscribed to CLIR and SUB.				
access SPA SPB ------setup-----> -------IAM------>				
1. Set up a call from the access with a special calling party number and a calling sub-address.				

TSS CLIR/	TP ISS_V_2_7	ISUP'97 reference 4.5.2.2.1/Q.731 [25]	Selection expression Transit	Q.788 [38] reference None
Test purpose *Conveying the information relating to CLIR* To verify that the address presentation restricted indicator in the **calling party number** and in the **generic number** are transferred successfully to the succeeding exchange.				
Case a) SPC SPA SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters. 2. CgPN only.				
Case b) SPC SPA SPB -------IAM------> -------IAM------> 1. The PTC will initiate a call set up with the expected parameters. 2. CgPN and addCgPN in GenNb.				

TSS CLIR/	TP ISS_V_2_8	ISUP'97 reference 3.5.2.3.1; 4.5.2.3.2; 4.6.5/Q.731 [25]	Selection expression OutIE AND PICS A.5/1	Q.788 [38] reference None
Test purpose *Discarding the calling party number if the presentation is restricted* To verify that the **calling party number** is discarded in case of bilateral agreements, if the address presentation restricted indicator is set to "presentation restricted". Pre-test conditions Arrange the data in IUT so that the calling party number is discarded.				
SPC SPA SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters.				

TSS CLIR/	TP ISS_V_2_9	ISUP'97 reference 3.5.2.3.1; 4.5.2.3.2; 4.6.5/Q.731 [25]	Selection expression OutIE AND PICS A.5/2	Q.788 [38] reference None
Test purpose *Discarding the additional calling party number if the presentation is restricted* To verify that the additional calling party number in the **generic number** is discarded in case of bilateral agreements, if the address presentation restricted indicator is set to "presentation restricted". Pre-test conditions Arrange the data in IUT so that the additional calling party number is discarded.				
SPC SPA SPB -------IAM------> -------IAM------>				
1. The PTC will initiate a call set up with the expected parameters.				

TSS CLIR/	TP ISS_V_2_10	ISUP'97 reference 4.6.20/Q.731 [25]	Selection expression DLE AND PICS A.3/9 (MCID)	Q.788 [38] reference None
Test purpose *Presentation of the address - interaction with MCID* To verify that the information conveyed in an incoming call (especially the **calling party number** and the additional calling party number in the **generic number**) is registered in the network regardless of whether the calling user has activated the CLIR service or not, if the called user has MCID activated. Pre-test conditions Arrange the data in the IUT such that the called user has activated the MCID supplementary service on a permanent basis. access SPA SPB <-----setup---- <-----IAM------ 1. Set up a call to the access with CgPN and addCgPN in the GenNb.				

TSS CLIR/	TP ISS_V_2_11	ISUP'97 reference 4.2.1/Q.731 [25]	Selection expression DLE	Q.788 [38] reference None
Test purpose *Presentation of the address - called party has override category* To verify that the **calling party number** and the additional calling party number in the **generic number** are passed to the access regardless of whether the calling user has activated the CLIR service or not if the called user has the override category. Pre-test conditions Arrange the data in the IUT such that the called user has the override category.				
access SPA SPB <-----setup---- <-----IAM------				
1. Set up a call to the access with CgPN and addCgPN in the GenNb.				

6.2.3 Connected line identification presentation (COLP)

TSS COLP/	TP ISS_V_3_1	ISUP'97 reference 5.5.2.1.1/Q.731 [25]	Selection expression OLE	Q.788 [38] reference 2.3.1
Test purpose *Initiate COLP request* To verify that the exchange can initiate successfully a call requesting the COLP service in the **optional forward call indicators**. Pre-test conditions Arrange the data in the IUT such that the calling party subscribes to COLP.				
access SPA SPB ------setup----> ------IAM------>				
1. Set up a call from the access with a COLP request.				

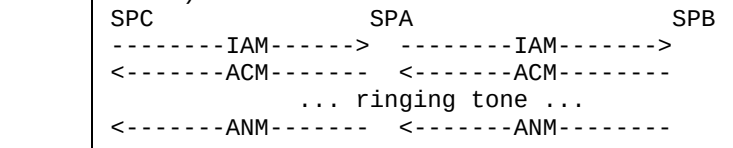
TSS COLP/	TP ISS_V_3_2	ISUP'97 reference 5.5.2.2.1/Q.731 [25]	Selection expression Transit	Q.788 [38] reference None
Test purpose *Passing on information relating to COLP* To verify that the IUT passes on transparently the information related to the COLP supplementary service in the **optional forward call indicators** (forward direction) and the **connected number** (backward direction).				
Case a) SPC SPA SPB --------IAM-------> --------IAM-------> <-------ACM-------- <-------ACM-------- ... ringing tone ... <-------ANM-------- <-------ANM--------				
1. The PTC will initiate a call set up with the expected parameters.				
Case b) SPC SPA SPB <-------IAM-------- <-------IAM-------- --------ACM-------> --------ACM------->; ... ringing tone ... --------ANM-------> --------ANM------->				
1. The PTC will assist a call set up with the expected parameters.				
Case c) SPC SPA SPB <-------IAM-------- <-------IAM-------- --------CON-------> --------CON------->				
1. The PTC will assist a call set up with the expected parameters.				

TSS COLP/	TP ISS_V_3_3	ISUP'97 reference 5.5.2.3.1/Q.731 [25]	Selection expression OutIE	Q.788 [38] reference None
Test purpose *Converting the connected number to national format, if necessary* To verify that the country code in the address signals of the **connected number** is removed if it is the network's own country code. The nature of address indicator shall be set to "national (significant) number", the address presentation restricted indicator and the screening indicator shall be transferred transparently.				
Case a) SPC SPA SPB --------IAM-------> --------IAM-------> <-------ACM-------- <-------ACM-------- ... ringing tone ... <-------ANM-------- <-------ANM--------				
1. The PTC will initiate a call set up with the expected parameters. 2. Provide ConNb to be passed on having AdSg: TSP_Nb_B with own country code.				
Case b) SPC SPA SPB --------IAM-------> --------IAM-------> <-------CON-------- <-------CON--------				
1. The PTC will initiate a call set up with the expected parameters. 2. Provide ConNb to be passed on having AdSg: TSP_Nb_B with own country code.				

TSS COLP/	TP ISS_V_3_4	ISUP'97 reference 5.5.2.3.1/Q.731 [25]	Selection expression OutIE	Q.788 [38] reference None

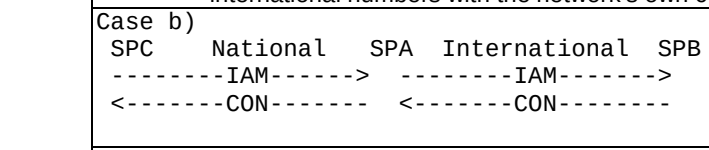
Test purpose
Converting the additional connected number to national format, if necessary
To verify that the country code in the address signals of the **generic number** coded as an "additional connected number", if the numbering plan indicator is "ISDN Telephony" is removed if it is the network's own country code. The nature of address indicator shall be set to "national (significant) number", the address presentation restricted indicator and the screening indicator shall be transferred transparently.

Case a)



1. The PTC will initiate a call set up with the expected parameters.
2. Provide ConNb: TSP_Nb_B_default and addConNb in GenNb: TSP_GenNb_B to be passed on, both international numbers with the network's own country code.

Case b)



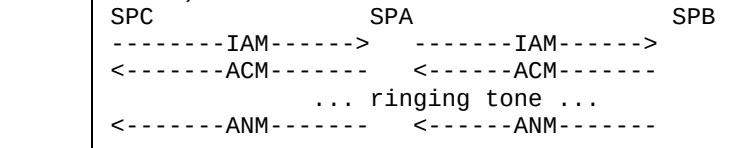
1. The PTC will initiate a call set up with the expected parameters.
2. Provide ConNb: TSP_Nb_B_default and addConNb in GenNb: TSP_GenNb_B to be passed on, both international numbers with the network's own country code.

TSS COLP/	TP ISS_I_3_5	ISUP'97 reference 5.5.2.3.1/Q.731 [25]	Selection expression OutIE AND PICS A.6/1	Q.788 [38] reference None

Test purpose
Adding a prefix to an international connected number
To verify that a prefix is added to the **connected number** and the nature of address indicator is set to "unknown".

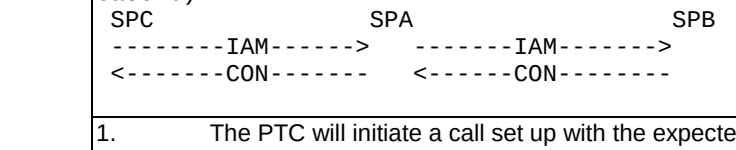
NOTE: The coding "unknown" is a national option (@).

Case a)



1. The PTC will initiate a call set up with the expected parameters.
2. Provide an international ConNb with a different country code than the incoming network (foreign CC).

Case b)



1. The PTC will initiate a call set up with the expected parameters.
2. Provide an international ConNb with a different country code than the incoming network (foreign CC).

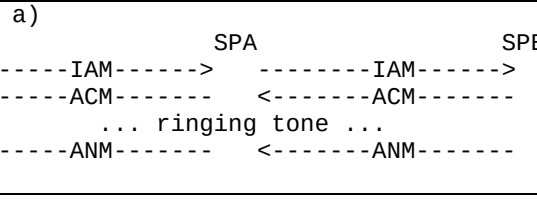
TSS COLP/	TP ISS_V_3_6	ISUP'97 reference 5.5.2.4.1/Q.731 [25]	Selection expression IncIE AND PICS A.6/2	Q.788 [38] reference None

Test purpose
Discarding the connected number in case of bilateral agreements
To verify that the **connected number** is discarded in case of bilateral agreements, if the address presentation restricted indicator is set to "presentation allowed".

NOTE: This bilateral agreement prohibits the transferral of the connected number in any case. The test with the address presentation restricted indicator set to "presentation restricted" is a COLR test.

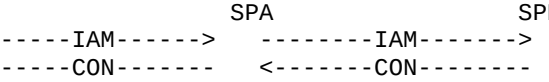
Pre-test conditions
Arrange the data in the IUT so that the connected number is discarded.

Case a)



1. The PTC will initiate a call set up with the expected parameters.
2. Provide ConNb to be discarded.

Case b)



1. The PTC will initiate a call set up with the expected parameters.
2. Provide ConNb to be discarded.

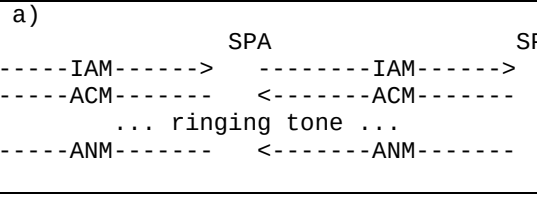
TSS COLP/	TP ISS_V_3_7	ISUP'97 reference 5.5.2.4.1/Q.731 [25]	Selection expression IncIE AND PICS A.6/3	Q.788 [38] reference None

Test purpose
Discarding the additional connected number in case of bilateral agreements
To verify that the additional connected number in the **generic number** is discarded in case of bilateral agreements, if the address presentation restricted indicator is set to "presentation allowed".

Pre-test conditions
Arrange the data in the IUT so that the additional connected number in the generic number is discarded.

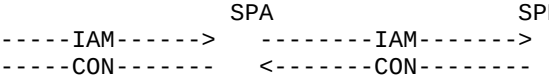
NOTE: This bilateral agreement prohibits the transferral of the additional connected number in the generic number in any case. The test with the address presentation restricted indicator set to "presentation restricted" is a COLR test.

Case a)



1. The PTC will initiate a call set up with the expected parameters.
2. Provide ConNb and addConNb in the GenNb to be discarded.

Case b)

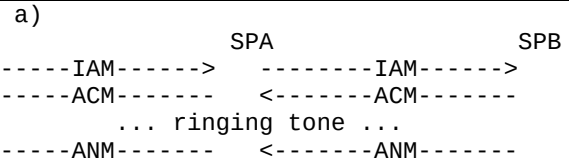


1. The PTC will initiate a call set up with the expected parameters.
2. Provide ConNb and addConNb in the GenNb to be discarded.

TSS COLP/	TP ISS_V_3_8	ISUP'97 reference 5.5.2.4.1/Q.731 [25]	Selection expression IncIE AND PICS A.6/4	Q.788 [38] reference 2.3.9

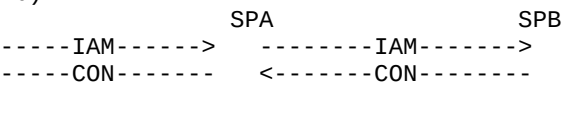
Test purpose
Resetting the address signals of the connected number, if they are not to be sent
To verify that for a **connected number** which is not to be released to the originating network the setting of the address presentation restricted indicator can be changed from "presentation allowed" to "address not available", and that the address signals are reset.

Case a)



1. The PTC will initiate a call set up with the expected parameters.
2. Provide ConNb to be reset ("address not available").

Case b)

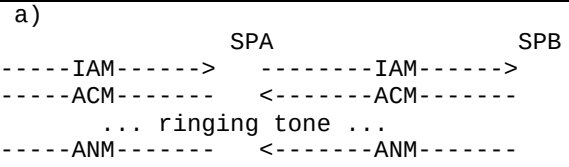


1. The PTC will initiate a call set up with the expected parameters.
2. Provide ConNb to be reset ("address not available").

TSS COLP/	TP ISS_V_3_9	ISUP'97 reference 5.5.2.4.1/Q.731 [25]	Selection expression IncIE	Q.788 [38] reference None

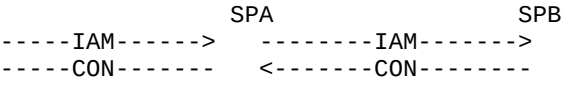
Test purpose
Converting the connected number to international format
To verify that the exchange can convert the **connected number** into an international number, setting the nature of address indicator to "international number" and can pass on the address presentation restricted indicator and the screening indicator transparently.

Case a)



1. The PTC will initiate a call set up with the expected parameters.
2. Provide national (significant) ConNb.

Case b)



1. The PTC will initiate a call set up with the expected parameters.
2. Provide national (significant) ConNb.

TSS COLP/	TP ISS_I_3_10	ISUP'97 reference 5.5.2.5.1/Q.731 [25]	Selection expression	Q.788 [38] reference 2.3.8
Test purpose *Handling unrequested COL* To verify that the call can be successfully set up if the IUT receives an unsolicited COL.				
Case a) access SPA SPB -------setup-------> --------IAM-------> <------alert--------- <-------ACM-------- ... ringing tone ... <------connect------ <-------ANM--------				
1. Set up a call from the access without a COLP request. 2. No COL request is issued. 3. Verdict is "pass" if the call is correctly set up.				
Case b) access SPA SPB --------setup------> --------IAM-------> <------connect------ <-------CON--------				
1. Set up a call from the access without a COLP request. 2. No COL request is issued. 3. Verdict is "pass" if the call is correctly set up.				
Case c) SPC SPA SPB <-------IAM-------- <-------IAM-------- --------ACM-------> --------ACM-------> ... ringing tone ... --------ANM-------> --------ANM------->				
1. The PTC will assist a call set up with the expected parameters. 2. No COL request is sent. 3. Verdict is "pass" if the call set up continues.				
Case d) SPC SPA SPB <-------IAM-------- <-------IAM-------- --------CON-------> --------CON------->				
1. The PTC will assist a call set up with the expected parameters. 2. No COL request is sent. 3. Verdict is "pass" if the call set up continues.				

TSS COLP/	TP ISS_V_3_11	ISUP'97 reference 5.5.2.5.1 i)/Q.731 [25]	Selection expression DLE	Q.788 [38] reference None
Test purpose *Connected number (user provided, verified and passed)* To verify that the IUT can provide a **connected number** with the screening indicator set to "user provided, verified and passed", if the user provided COL is valid.				
Case a) access SPA SPB <------setup------- <-------IAM-------- -------alert------> --------ACM-------> ... ringing tone ... ------connect-----> --------ANM------->				
1. Set up a call to the access with a COLP request, access provides valid COL.				
Case b) access SPA SPB <------setup------- <-------IAM-------- ------connect-----> --------CON------->				
1. Set up a call to the access with a COLP request, access provides valid COL.				

TSS COLP/	TP ISS_V_3_12	ISUP'97 reference 5.5.2.5.1 i)/Q.731 [25]	Selection expression DLE AND PICS A.3/8 (SUB)	Q.788 [38] reference 2.3.3

Test purpose
Connected number (user provided, verified and passed) with connected sub-address
To verify that the IUT can provide a **connected number** with the screening indicator set to "user provided, verified and passed", if the user provided COL is valid and an **access transport** parameter containing the connected sub-address.
Pre-test conditions
Arrange the data in the IUT so that the connected party has subscribed to SUB.

```
Case a)
access            SPA                SPB
 <------setup------ <-------IAM--------
 -------alert-----> --------ACM------->
        ... ringing tone ...
 ------connect----> --------ANM------->
```

1. Set up a call to the access with a COLP request, access provides valid COL with sub-address.

```
Case b)
 access            SPA                SPB
 <------setup------ <-------IAM--------
 ------connect----> --------CON------->
```

1. Set up a call to the access with a COLP request, access provides valid COL with sub-address.

TSS COLP/	TP ISS_V_3_13	ISUP'97 reference 5.5.2.5.1 ii)/Q.731 [25]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Connected number (network provided)
To verify that the IUT can provide a default **connected number** with the screening indicator set to "network provided", if the user provided COL is not valid.

```
Case a)
 access              SPA                SPB
 <------setup------- <-------IAM--------
 -------alert------> --------ACM------->
             ... ringing tone ...
 ------connect-----> --------ANM------->
```

1. Set up a call to the access with a COLP request, access provides invalid COL.
2. ScrI set to "network provided" is implicit.

```
Case b)
 access              SPA                SPB
 <------setup------- <-------IAM--------
 ------connect-----> --------CON------->
```

1. Set up a call to the access with a COLP request, access provides invalid COL.
2. ScrI set to "network provided" is implicit.

TSS COLP/	TP ISS_V_3_14	ISUP'97 reference 5.5.2.5.1 ii)/Q.731 [25]	Selection expression DLE AND PICS A.3/8 (SUB)	Q.788 [38] reference 2.3.2

Test purpose
Connected number (network provided) with connected sub-address
To verify that the IUT can provide a default **connected number** with the screening indicator set to "network provided", if the user provided COL is not valid and an **access transport** parameter containing the connected sub-address.
Pre-test conditions
Arrange the data in the IUT so that the connected party has subscribed to SUB.

```
Case a)
 access             SPA                SPB
 <------setup------- <-------IAM--------
 -------alert------> --------ACM------->
           ... ringing tone ...
 ------connect-----> --------ANM------->
```

1. Set up a call to the access with a COLP request, access provides invalid COL with sub-address.

```
Case b)
 access             SPA                SPB
 <------setup------ <-------IAM--------
 ------connect----> --------CON------->
```

1. Set up a call to the access with a COLP request, access provides valid COL with sub-address.

TSS COLP/	TP ISS_V_3_15	ISUP'97 reference 5.5.2.5.1 iii)/Q.731 [25]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Connected number (user provided, not verified)
To verify that the IUT can provide a default **connected number** with the screening indicator set to "network provided" and a **generic number** containing the additional connected number with the screening indicator set to "user provided, not verified".
Pre-test conditions
Arrange the data in the IUT so that there is a special arrangement from the access signalling system regarding an additional connected number.

```
Case a)
 access            SPA                SPB
 <------setup------- <-------IAM--------
 -------alert------> --------ACM------->
           ... ringing tone ...
 ------connect-----> --------ANM------->
```

1. Set up a call to the access with a COLP request, access provides special COL.

```
Case b)
 access            SPA                SPB
 <------setup------- <-------IAM--------
 ------connect-----> --------CON------->
```

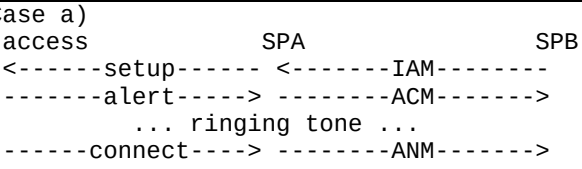
1. Set up a call to the access with a COLP request, access provides special COL.

TSS COLP/	TP ISS_V_3_16	ISUP'97 reference 5.5.2.5.1 iii)/Q.731 [25]	Selection expression DLE AND PICS A.3/8 (SUB)	Q.788 [38] reference 2.3.4

Test purpose
Connected number (user provided, not verified) with connected sub-address
To verify that the IUT can provide a default **connected number** with the screening indicator set to "network provided", a **generic number** containing the additional connected number with the screening indicator set to "user provided, not verified" and an **access transport** parameter containing the connected sub-address.

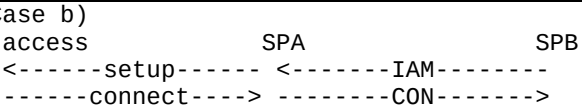
Pre-test conditions
Arrange the data in the IUT so that there is a special arrangement from the access signalling system regarding an additional connected number and that the connected party has subscribed to the sub-addressing supplementary service.

Case a)



1. Set up a call to the access with a COLP request, access provides special COL with sub-address.

Case b)

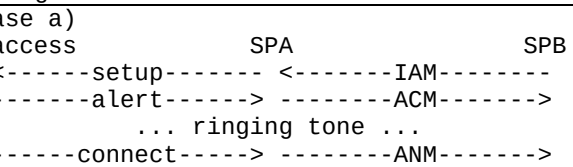


1. Set up a call to the access with a COLP request, access provides special COL with sub-address.

TSS COLP/	TP ISS_V_3_17	ISUP'97 reference 5.5.2.5.1/Q.731 [25]	Selection expression DLE AND NOT PICS A.6/5	Q.788 [38] reference None

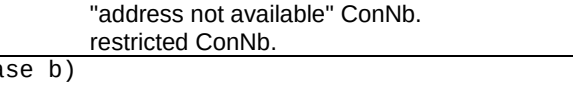
Test purpose
COL cannot be transferred
To verify that the address presentation restricted indicator in the **connected number** in **ANM** or in **CON** is set to "presentation restricted" or "address not available" and that the screening indicator shall be set to "network provided" if the COL cannot be transferred.
Pre-test conditions
Arrange the data in the IUT so that no COL can be transferred.

Case a)



1. Set up a call to the access with a COLP request, access doesn't provide the COL.
2. "address not available" ConNb.
3. restricted ConNb.

Case b)



1. Set up a call to the access with a COLP request, access doesn't provide the COL.
2. "address not available" ConNb.
3. restricted ConNb.

TSS COLP/	TP ISS_V_3_18	ISUP'97 reference 5.6.14/Q.731 [25]	Selection expression DLE	Q.788 [38] reference None

Test purpose
COLP - interaction with MSN
To verify that an exchange with MSN can provide the connected party multiple subscriber number or full ISDN number as the **connected number** on call answer.
Pre-test conditions
Arrange the data in the IUT such that the called user has activated the Multiple Subscriber Number (MSN) supplementary service.

```
Case a)
 access            SPA                SPB
 <------setup------- <-------IAM--------
 -------alert------> --------ACM------->
          ... ringing tone ...
 ------connect-----> --------ANM------->
```

1. Set up a call to the access with a COLP request.
2. ConNb - full ISDN number; ConNb.AdSg: TSP_Nb_A.
3. ConNb2 - multiple subscriber number; ConNb2.AdSg: TSP_Nb_A_MSN.

```
Case b)
 access           SPA                SPB
 <------setup------- <-------IAM--------
 ------connect-----> --------CON------->
```

1. Set up a call to the access with a COLP request.
2. ConNb - full ISDN number; ConNb.AdSg: TSP_Nb_A.
3. ConNb2 - multiple subscriber number; ConNb2.AdSg: TSP_Nb_A_MSN.

6.2.4 Connected line identification restriction (COLR)

TSS COLR/	TP ISS_V_4_1	ISUP'97 reference 6.5.2.1.1/Q.731 [25]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Presentation of restricted COL
To verify that a local exchange will not pass the information on to the access signalling system when a **connected number** is received in the ANM or CON and its address presentation restricted indicator is set to "presentation restricted", i.e. that presentation is denied on the user-network interface (UNI).
Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to COLP.

```
Case a)
access             SPA                SPB
 -------setup------> --------IAM-------->
 <------alert------- <-------ACM--------
           ... ringing tone ...
 <------connect----- <-------ANM--------
```

1. Set up a call from the access with a COLP request.
2. The possible verdicts from observations on access are "failed" or "inconclusive".

```
Case b)
 SPC                SPA                SPB
  -------setup------> --------IAM-------->
 <------connect------ <-------CON--------
```

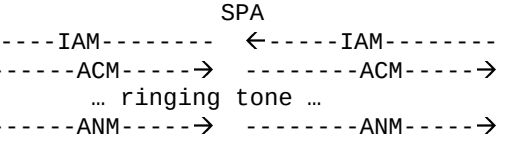
1. Set up a call from the access with a COLP request.
2. The possible verdicts from observations on access are "failed" or "inconclusive"

TSS COLR/	TP ISS_I_4_2	ISUP'97 reference 6.5.2.1.2/Q.731 [25]	Selection expression OLE	Q.788 [38] reference None
Test purpose *Presentation of restricted COL to "override category" calling user* To verify that the received **connected number** and optionally the additional connected number in the **generic number** can be conveyed successfully to an "override category" calling user, if the called user has activated the Connected Line Presentation Restriction (COLR) supplementary service. Pre-test conditions Arrange the data in the IUT such that the calling user has an "override category".				
Case a) access SPA SPB -------setup----→ --------IAM-----→ ←----alert------- ←-----ACM-------- … ringing tone … ←---connect------ ←-----ANM--------				
1. Set up a call from the access with a COLP request. 2. ConNb and addConNb in GenNb. 3. The possible verdicts from observations on access are "failed" or "inconclusive".				
Case b) SPC SPA SPB -------setup----→ --------IAM-----→ ←---connect------ ←-----CON--------				
1. Set up a call from the access with a COLP request. 2. The possible verdicts from observations on access are "failed" or "inconclusive".				

TSS COLR/	TP ISS_V_4_3	ISUP'97 reference 6.5.2.2.1/Q.731 [25]	Selection expression Transit	Q.788 [38] reference None

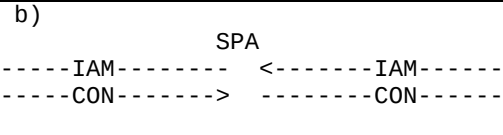
Test purpose
Passing on information relating to COLR
To verify that the IUT shall pass transparently all information related to the COLR supplementary service in the address presentation restricted indicator of the **connected number** and optionally the additional connect number in the **generic number**.

Case a)



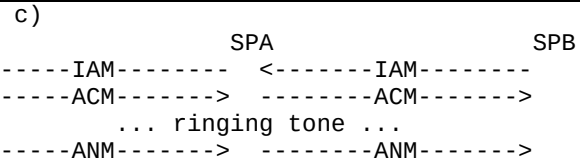
1. The PTC will assist a call set up with the expected parameters.
2. ConNb.

Case b)



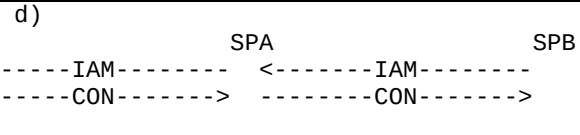
1. The PTC will assist a call set up with the expected parameters.
2. ConNb.

Case c)



1. The PTC will assist a call set up with the expected parameters.
2. ConNb and addConNb in GenNb.

Case d)



1. The PTC will assist a call set up with the expected parameters.
2. ConNb and addConNb in GenNb.

TSS COLR/	TP ISS_V_4_4	ISUP'97 reference 6.5.2.4.1/Q.731 [25]	Selection expression IncIE AND PICS A.7/1	Q.788 [38] reference None

Test purpose
Discarding the connected number if the presentation is restricted
To verify that the **connected number** is discarded in case of bilateral agreements, if the address presentation restricted indicator is set to "presentation restricted".
Pre-test conditions
Arrange the data in IUT so that the connected number is discarded.

```
Case a)
 SPC                SPA                   SPB
 --------IAM------>  --------IAM------->
 <-------ACM-------  <-------ACM-------
           ... ringing tone ...
 <-------ANM-------  <-------ANM-------
```

1. The PTC will initiate a call set up with the expected parameters.
2. Provide restricted ConNb to be discarded.

```
Case b)
 SPC                SPA                   SPB
 --------IAM------>  --------IAM------->
 <-------CON-------  <-------CON--------
```

1. The PTC will initiate a call set up with the expected parameters.
2. Provide restricted ConNb to be discarded.

TSS COLR/	TP ISS_V_4_5	ISUP'97 reference 6.5.2.4.1/Q.731 [25]	Selection expression IncIE AND PICS A.7/2	Q.788 [38] reference None

Test purpose
Discarding the additional connected number in the generic number if the presentation is restricted
To verify that the additional connected number in the **generic number** is discarded in case of bilateral agreements, if the address presentation restricted indicator is set to "presentation restricted".
Pre-test conditions
Arrange the data in IUT so that the additional connected number in the generic number is discarded.

```
Case a)
 SPC                SPA                   SPB
 --------IAM------>  --------IAM------->
 <-------ACM-------  <-------ACM-------
           ... ringing tone ...
 <-------ANM-------  <-------ANM-------
```

1. The PTC will initiate a call set up with the expected parameters.
2. Provide restricted ConNb and restricted addConNb in GenNb to be discarded.

```
Case b)
 SPC                SPA                   SPB
 --------IAM------>  --------IAM------->
 <-------CON-------  <-------CON--------
```

1. The PTC will initiate a call set up with the expected parameters.
2. Provide restricted ConNb and restricted addConNb in GenNb to be discarded.

TSS COLR/	TP ISS_I_4_6	ISUP'97 reference 6.5.2.4.1/Q.731 [25]	Selection expression IncIE AND PICS A.7/3	Q.788 [38] reference None

Test purpose
Resetting the address signals of the connected number, whose release is forbidden
To verify that for a **connected number** which is not to be released to the originating network the setting of the address presentation restricted indicator can be changed from "presentation restricted" to "address not available" and that the address signals are reset.

```
Case a)
 SPC                SPA                   SPB
 --------IAM------>   --------IAM------->
 <-------ACM-------   <-------ACM-------
           ... ringing tone ...
 <-------ANM-------   <-------ANM-------
```

1. The PTC will initiate a call set up with the expected parameters.
2. Provide restricted ConNb to be reset.

```
Case b)
 SPC                SPA                   SPB
 --------IAM------>   --------IAM------->
 <-------CON-------   <-------CON--------
```

1. The PTC will initiate a call set up with the expected parameters.
2. Provide restricted ConNb to be reset.

TSS COLR/	TP ISS_V_4_7	ISUP'97 reference 6.5.2.5.1/Q.731 [25]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Restricted connected number (user provided, verified and passed)
To verify that the IUT can provide a **connected number** with the screening indicator set to "user provided, verified and passed" and with the address presentation restricted indicator set to "presentation restricted", if the user provided COL is valid.
Pre-test conditions
Arrange the data in the IUT so that the connected party has subscribed to COLR.

```
Case a)
 access             SPA                 SPB
 <------setup------- <-------IAM--------
 -------alert------> --------ACM------->
           ... ringing tone ...
 ------connect-----> --------ANM------->
```

1. Set up a call to the access with a COLP request, access provides valid COL.

```
Case b)
 access            SPA                  SPB
 <------setup------ <-------IAM--------
 ------connect----> --------CON------->
```

1. Set up a call to the access with a COLP request, access provides valid COL.

TSS COLR/	TP ISS_V_4_8	ISUP'97 reference 6.5.2.5.1/Q.731 [25]	Selection expression DLE AND PICS A.3/8 (SUB)	Q.788 [38] reference 2.3.6

Test purpose
Restricted connected number (user provided, verified and passed) with connected sub-address
To verify that the IUT can provide a **connected number** with the screening indicator set to "user provided, verified and passed" and with the address presentation restricted indicator set to "presentation restricted", if the user provided COL is valid. Additionally, an **access transport** parameter containing the connected sub-address shall also be provided.
Pre-test conditions
Arrange the data in the IUT so that the connected party has subscribed to COLR and SUB.

```
Case a)
 access           SPA                  SPB
 <------setup------ <-------IAM--------
 -------alert-----> --------ACM------->
          ... ringing tone ...
 ------connect----> --------ANM------->
```

1. Set up a call to the access with a COLP request, access provides valid COL with sub-address.

```
Case b)
 access            SPA                  SPB
 <------setup------- <-------IAM--------
 -------connect----> --------CON------->
```

1. Set up a call to the access with a COLP request, access provides valid COL with sub-address.

TSS COLR/	TP ISS_V_4_9	ISUP'97 reference 6.5.2.5.1/Q.731 [25]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Restricted connected number (network provided)
To verify that the IUT can provide a default connected number with the screening indicator set to "network provided" and with the address presentation restricted indicator set to "presentation restricted", if the user provided COL is not valid.
Pre-test conditions
Arrange the data in the IUT so that the connected party has subscribed to the COLR.

```
Case a)
 access            SPA                  SPB
 <------setup------- <-------IAM--------
 -------alert------> --------ACM------->
           ... ringing tone ...
 ------connect----> --------ANM------->
```

1. Set up a call to the access with a COLP request, access provides invalid COL.

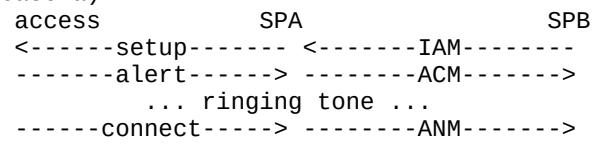
```
Case b)
 access            SPA                  SPB
 <------setup------- <-------IAM--------
 ------connect-----> --------CON------->
```

1. Set up a call to the access with a COLP request, access provides invalid COL.

TSS COLR/	TP ISS_V_4_10	ISUP'97 reference 6.5.2.5.1/Q.731 [25]	Selection expression DLE AND PICS A.3/8 (SUB)	Q.788 [38] reference 2.3.5

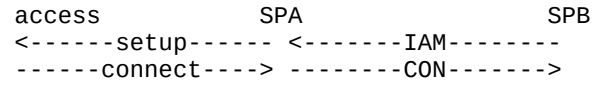
Test purpose
Restricted connected number (network provided) with connected sub-address
To verify that the IUT can provide a default **connected number** with the screening indicator set to "network provided" and with the address presentation restricted indicator set to "presentation restricted", if the user provided COL is not valid. Additionally, an **access transport** parameter containing the connected sub-address shall also be provided.
Pre-test conditions
Arrange the data in the IUT so that the connected party has subscribed COLR and SUB.

Case a)



1. Set up a call to the access with a COLP request, access provides invalid COL with sub-address.
2. ScrI "network provided" is implicit.

Case b)

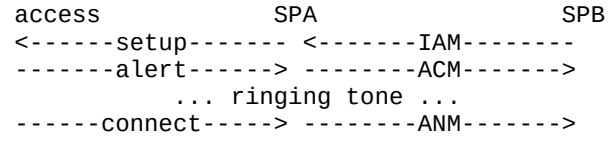


1. Set up a call to the access with a COLP request, access provides invalid COL with sub-address.
2. ScrI "network provided" is implicit.

TSS COLR/	TP ISS_V_4_11	ISUP'97 reference 6.5.2.5.1/Q.731 [25]	Selection expression DLE	Q.788 [38] reference None

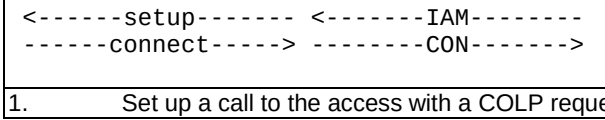
Test purpose
Restricted connected number (user provided, not verified)
To verify that the IUT can provide a default connected number with the screening indicator set to "network provided" and a generic number containing the additional connected number with the screening indicator set to "user provided, not verified" - both having the address presentation restricted indicator set to "presentation restricted".
Pre-test conditions
Arrange the data in IUT so that there is a special arrangement from the access signalling system regarding an additional connected number and that the connected party has subscribed to COLR.

Case a)



1. Set up a call to the access with a COLP request, access provides special COL.

Case b)



1. Set up a call to the access with a COLP request, access provides special COL.

TSS COLR/	TP ISS_V_4_12	ISUP'97 reference 6.5.2.5.1/Q.731 [25]	Selection expression DLE AND PICS A.3/8 (SUB)	Q.788 [38] reference 2.3.5

Test purpose
Restricted connected number (user provided, not verified) with connected sub-address
To verify that the IUT can provide a default **calling party number** with the screening indicator set to "network provided", a **generic number** containing the additional connected number with the screening indicator set to "user provided, not verified" - both having the address presentation restricted indicator set to "presentation restricted" and additionally an **access transport** parameter containing the connected sub-address.
Pre-test conditions
Arrange the data in IUT so that there is a special arrangement from the access signalling system regarding an additional connected number and that the connected party has subscribed to COLR and SUB.

```
Case a)
 access            SPA                 SPB
 <------setup-------  <-------IAM--------
 -------alert------>  --------ACM------->
           ... ringing tone ...
 ------connect----->  --------ANM------->
```

1. Set up a call to the access with a COLP request, access provides special COL with sub-address.

```
Case b)
 access            SPA                 SPB
 <------setup-------  <-------IAM--------
 ------connect----->  --------CON------->
```

1. Set up a call to the access with a COLP request, access provides special COL with sub-address.

6.2.5 Terminal portability (TP)

TSS TP/	TP ISS_V_5_1	ISUP'97 reference 4.5.2.1.1 a)/ EN 300 356-20 [22]	Selection expression OLE	Q.788 [38] reference 2.12.1

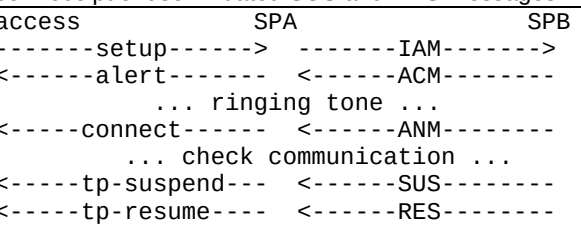
Test purpose
Terminal portability, requested by the calling party
To verify that the calling party can suspend and resume an outgoing call and that user initiated **SUS** and **RES** messages are sent to the succeeding exchange.
Pre-test conditions
Arrange the data in the IUT so that the calling party subscribes to the Terminal portability service.

```
 access            SPA                 SPB
 ------setup------->  -------IAM-------->
 <-----alert--------  <------ACM---------
           ... ringing tone ...
 <----connect-------  <------ANM---------
          ... check communication ...
 ----tp-suspend---->  -------SUS-------->
 -----tp-resume---->  -------RES-------->
```

1. Set up a call from SPA to SPB.
2. Suspend the call by the calling party (ISDN subscriber).
3. Resume the call by the calling party (ISDN subscriber).

TSS TP/	TP ISS_V_5_2	ISUP'97 reference 4.5.2.1.1 b)/ EN 300 356-20 [22]	Selection expression OLE	Q.788 [38] reference 2.12.1

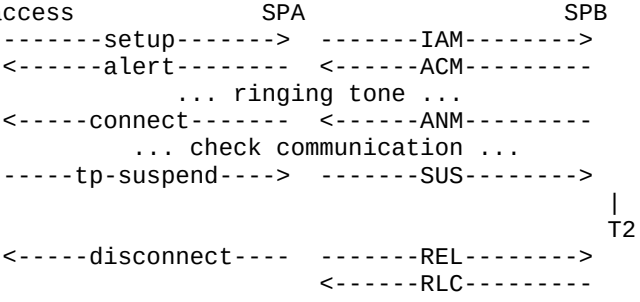
Test purpose
Terminal portability, requested by the called party
To verify that IUT informs the calling party that a suspend and a resume have been requested by the called party upon receipt of user initiated **SUS** and **RES** messages.



1. Set up a call from SPA to SPB.
2. Suspend the call by the called party (ISDN subscriber).
3. Resume the call by the called party (ISDN subscriber).

TSS TP/	TP ISS_I_5_3	ISUP'97 reference 4.5.2.1.2/ EN 300 356-20 [22]	Selection expression Local	Q.788 [38] reference 2.12.2

Test purpose
Terminal portability, requested by local served user, no Resume after Suspend
To verify that the call is released with cause #102 (recovery on timer expiry) by the IUT if timer T2 expires because the local served user does not resume the call.
Pre-test conditions
Arrange the data in the IUT so that the local user subscribes to the Terminal portability service.

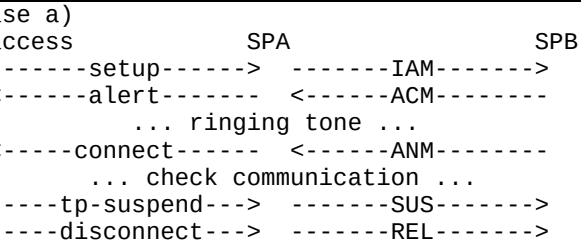


1. Set up a call from SPA to SPB.
2. Suspend the call by the calling party (ISDN subscriber).
3. Check if the call is released with cause #102.

TSS TP/	TP ISS_V_5_4	ISUP'97 reference 4.5.2.1.1/ EN 300 356-20 [22]	Selection expression Local	Q.788 [38] reference None

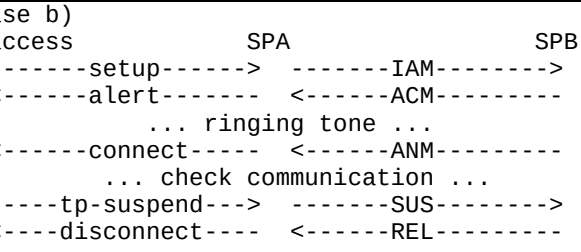
Test purpose
Terminal portability, release suspended call
To verify that a suspended call can be released by the IUT, if the local user or the remote user releases the call.

Case a)



1. Set up a call from SPA to SPB.
2. Suspend the call by the calling party (ISDN subscriber).
3. Release the suspended call by the local user.

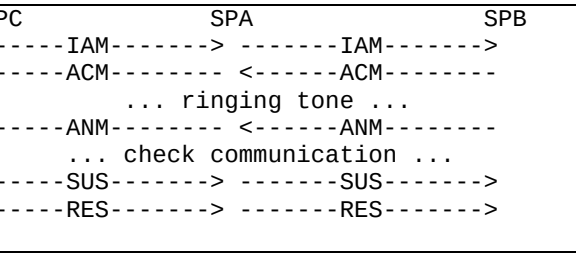
Case b)



1. Set up a call from SPA to SPB.
2. Suspend the call by the calling party (ISDN subscriber).
3. Release the suspended call by the remote user.

TSS TP/	TP ISS_V_5_5	ISUP'97 reference 4.5.2.2.1 a); 4.5.2.3.1; 4.5.2.4.1/ EN 300 356-20 [22]	Selection expression IntermE	Q.788 [38] reference None

Test purpose
Terminal portability, requested by the calling party (transit call)
To verify that the **SUS** and **RES** messages are passed on transparently by the IUT, if the calling party requests the service.



1. Set up a call from SPA to SPB.
2. Suspend the call by the calling party (ISDN subscriber).
3. Resume the call by the calling party (ISDN subscriber).

TSS TP/	TP ISS_V_5_6	ISUP'97 reference 4.5.2.2.1 b); 4.5.2.3.1; 4.5.2.4.1/ EN 300 356-20 [22]	Selection expression IntermE	Q.788 [38] reference None

Test purpose
Terminal portability, requested by the called party (transit call)
To verify that the **SUS** and **RES** messages are passed on transparently by the IUT, if the called party requests the service.

```
 SPC              SPA                  SPB
 <------IAM-------- <-------IAM--------
 -------ACM-------> --------ACM------->
           ... ringing tone ...
 -------ANM-------> -------ANM-------->
      ... check communication ...
 -------SUS-------> --------SUS------->
 -------RES-------> --------RES------->
```

1. Set up a call from the UNI at SPB.
2. The called party at UNI at SPC suspends the call (ISDN subscriber).
3. The called party at UNI at SPC resumes the call (ISDN subscriber).

TSS TP/	TP ISS_V_5_7	ISUP'97 reference 4.5.2.5.1 a)/ EN 300 356-20 [22]	Selection expression DLE	Q.788 [38] reference 2.12.1

Test purpose
Terminal portability, requested by the calling party
To verify that the IUT informs the called party that suspend and resume have been requested by the calling party upon receipt of user initiated **SUS** and **RES** messages.

```
access           SPA                  SPB
 <----setup------- <------IAM---------
 -----alert------> -------ACM-------->
          ... ringing tone ...
 -----connect----> -------ANM-------->
        ... check communication ...
 <---tp-suspend--- <------SUS---------
 <---tp-resume---- <------RES---------
```

1. Set up a call from the UNI at SPB.
2. The calling party at SPB suspends the call (ISDN subscriber).
3. The calling party at SPB resumes the call (ISDN subscriber).

TSS TP/	TP ISS_V_5_8	ISUP'97 reference 4.5.2.5.1 b)/ EN 300 356-20 [22]	Selection expression DLE	Q.788 [38] reference 2.12.1

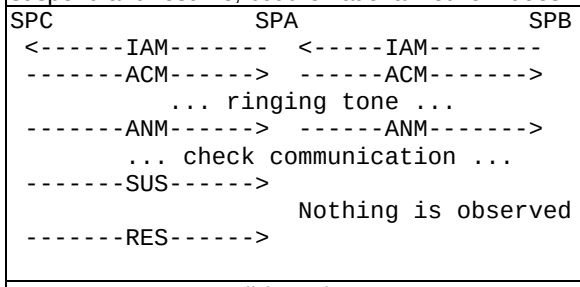
Test purpose
Terminal portability, requested by the called party
To verify that the called party can suspend and resume an incoming call and that user initiated **SUS** and **RES** messages are sent to the preceding exchange.
Pre-test conditions
Arrange the data in the IUT so that the called party subscribes to the Terminal portability service.

```
 access          SPA                 SPB
<-----setup------  <-----IAM---------
------alert------>  ------ACM-------->
        ... ringing tone ...
-----connect---->  ------ANM-------->
      ... check communication ...
----tp-suspend-->  ------SUS-------->
----tp-resume--->  ------RES-------->
```

1. Set up a call from the UNI at SPB.
2. The called party at UNI at SPA suspends the call (ISDN subscriber).
3. The called party at UNI at SPA resumes the call (ISDN subscriber).

TSS NO_TP/	TP ISS_I_5_9	ISUP'97 reference 4.5.2.3.2; 4.5.2.4.2/ EN 300 356-20 [22]	Selection expression Gateway AND NOT PICS A.3/5 AND PICS A.8/1	Q.788 [38] reference None

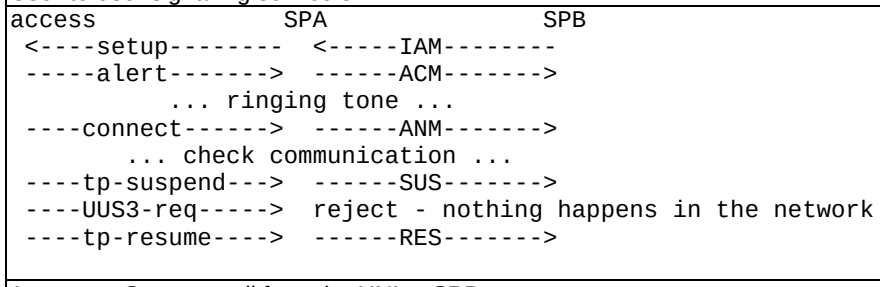
Test purpose
Terminal portability, national network does not support the service
To verify that the **SUS** and **RES** messages are discarded by the IUT without notification if the served user requests suspend and resume, but the national network does not support the Terminal portability service.



1. Set up a call from the UNI at SPB.

TSS TP/	TP ISS_V_5_10	ISUP'97 reference 4.6.13.3/ EN 300 356-20 [22]	Selection expression Local AND PICS A.9/8	Q.788 [38] reference None

Test purpose
Terminal portability, request for UUS3 while call is suspended
To verify that a request for User-to-user signalling service 3 is rejected by the IUT if the call is currently suspended and if the IUT is the suspend controlling exchange.
Pre-test conditions
Arrange the data in the IUT so that the local user subscribes both to the Terminal portability service and to the User-to-user signalling service 3.



1. Set up a call from the UNI at SPB.
2. The called party suspends the call (ISDN subscriber).
3. The called party resumes the call (ISDN subscriber).

6.2.6 User-to-user signalling (UUS)

6.2.6.1 User-to-user signalling service 1 (UUS1)

TSS UUS/UUS1_I/	TP ISS_V_6_1_1	ISUP'97 reference 1.1.2.1/Q.737 [33]	Selection expression OLE AND PICS A.9/1	Q.788 [38] reference None

Test purpose
32 octets user-to-user information
To verify that the IUT can successfully initiate a call having 32 octets of **user-to-user information** in the messages related to the set up or the release of the call.
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS1 supplementary service.

```
 access                SPA                    SPB
 ----setup(UUInf)---->  -----IAM(UUInf)---->
 <---alert(UUInf)-----  <----ACM(UUInf)-----
             ... ringing tone ...
 <--connect(UUInf)----  <----ANM(UUInf)-----
          ... check communication ...
  <---disc(UUInf)-----  <----REL(UUInf)-----
                         -------RLC--------->
```

1. Set up a call from UNI at SPA to SPB with 32 octets of user-to-user information.

TSS UUS/UUS1_I/	TP ISS_V_6_1_2	ISUP'97 reference 1.1.5.2.1.1.1; 1.1.5.2.1.1.3; 1.1.5.2.2-4.1/Q.737 [33]	Selection expression OLE OR IntermE	Q.788 [38] reference 2.15.1

Test purpose
UUS1 implicit - request
To verify that the IUT can successfully initiate/transit a call with an UUS 1 implicit request, having the **user-to-user information** parameter in the **IAM**, without the **user-to-user indicators** parameter.
Pre-test conditions (in case of OLE)
Arrange the data in the IUT so that the user has subscribed to the UUS1 supplementary service.

Case a)

```
 access                SPA                    SPB
 ----setup(UUInf)--->  ------IAM(UUInf)---->
 <---alert(UUInf)----  <-----ACM(UUInf)-----
             ... ringing tone ...
 <--connect(UUInf)---  <-----ANM(UUInf)-----
          ... check communication ...
 <---disc(UUInf)-----  <-----REL(UUInf)-----
                       -------RLC---------->
```

1. Set up a call from UNI at SPA to SPB with user-to-user information.

Case b)

```
SPC                    SPA                    SPB
 -----IAM(UUInf)---->  -----IAM(UUInf)---->
 <----ACM(UUInf)-----  <----ACM(UUInf)-----
              ... ringing tone ...
 <----ANM(UUInf)-----  <----ANM(UUInf)-----
             ... check communication ...
 <----REL(UUInf)-----  <----REL(UUInf)-----
 --------RLC-------->  -------RLC--------->
```

1. Set up a call from UNI at SPA to SPB with user-to-user information.

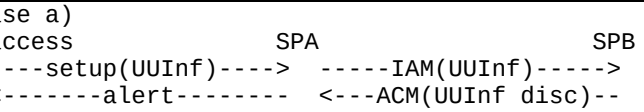
TSS UUS/UUS1_I/	TP ISS_I_6_1_3	ISUP'97 reference 1.1.5.2.5.2.3; 1.1.5.2.2-4.2/Q.737 [33]	Selection expression OLE OR IntermE	Q.788 [38] reference 2.15.2

Test purpose
UUS1 implicit - discarded with indication received
To verify that the IUT can, after successfully initiating/transiting a call with an UUS1 implicit request, continue normal call set up if the first backward message is received with the **user-to-user indicators** set to "user-to-user information discarded by the network".

NOTE: The user-to-user information is discarded because the following network does not support it.

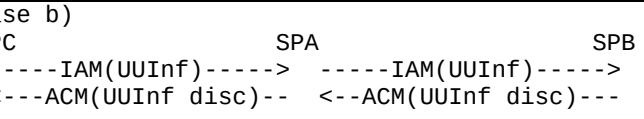
Pre-test conditions (in case of OLE)
Arrange the data in the IUT so that the user has subscribed to the UUS1 supplementary service.

Case a)



1. Set up a call from UNI at SPA to SPB with user-to-user information.
2. First backward message with user-to-user indicators set to "UUInf discarded by the network".

Case b)



1. Set up a call from UNI at SPA to SPB with user-to-user information.
2. First backward message with user-to-user indicators set to "UUInf discarded by the network".

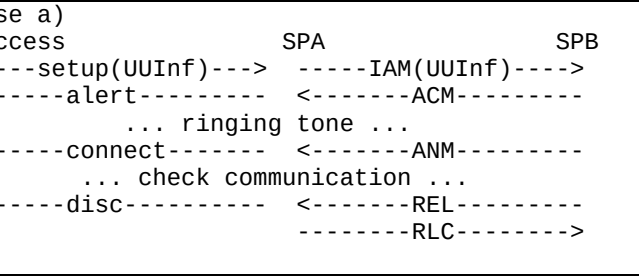
TSS UUS/UUS1_I/	TP ISS_I_6_1_4	ISUP'97 reference 1.1.5.2.5.2.3; 1.1.5.2.3-5.2/Q.737 [33]	Selection expression OLE OR IntermE	Q.788 [38] reference None

Test purpose
UUS1 implicit - discarded but no indication received
To verify that the IUT can successfully initiate/transit a call with an UUS1 implicit request, and complete the call if no indication is provided in the backward direction.

NOTE: The user-to-user information is discarded because:
1) the remote network is unable to pass the service 1 in any message.
2) the remote user may not be able to interpret incoming UUS information.

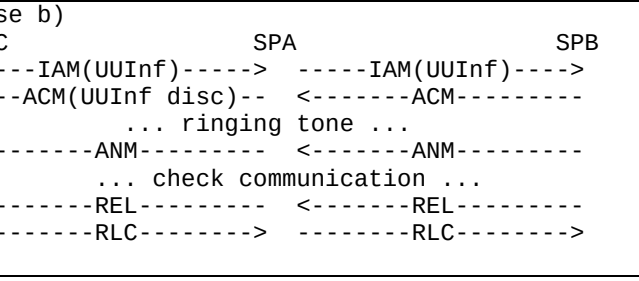
Pre-test conditions (in case of OLE)
Arrange the data in the IUT so that the user has subscribed to the UUS1 supplementary service.

Case a)



1. Set up a call from UNI at SPA to SPB with user-to-user information.
2. No indication in the first backward message.

Case b)



1. Set up a call from UNI at SPA to SPB with user-to-user information.
2. No indication regarding UUS1 in the first backward message.

TSS UUS/UUS1_I/	TP ISS_V_6_1_5	ISUP'97 reference 1.1.5.2.1.1.1; 1.1.5.2.1.1.3; 1.1.5.2.3-5.1/Q.737 [33]	Selection expression IntermE OR DLE	Q.788 [38] reference 2.15.1

Test purpose
UUS1 implicit - acceptance
To verify that the IUT can successfully transit/accept a call with an UUS1 implicit request, and transfer/include the **user-to-user information** parameter in the **ACM**, **CPG, ANM, CON**, **SGM** or **REL** as implicit acceptance (no **user-to-user indicators**).
Pre-test conditions (in case of DLE)
Arrange the data in the IUT so that the user has subscribed to the UUS1 supplementary service.

```
Case a)
access                SPA                   SPB
 <----setup(UUInf)--- <-----IAM(UUInf)-----
 ----alert(UUInf)---> ------ACM(UUInf)---->
             ... ringing tone ...
 ---connect(UUInf)--> ------ANM(UUInf)---->
          ... check communication ...
 <----disc(UUInf)---- <-----REL(UUInf)-----
                       --------RLC--------->
```

1. Set up a call from UNI at SPB to SPA with user-to-user information.

```
Case b)
SPC                   SPA                   SPB
 <----IAM(UUInf)-----  <-----IAM(UUInf)----
 -----ACM(UUInf)---->  ------ACM(UUInf)--->
             ... ringing tone ...
 -----ANM(UUInf)---->  ------ANM(UUInf)--->
          ... check communication ...
 <----REL(UUInf)-----  <-----REL(UUInf)----
                        ---------RLC------->
```

1. Set up a call from UNI at SPB to SPA with user-to-user information.

TSS UUS/NO_UUS1_I/	TP ISS_I_6_1_6	ISUP'97 reference 1.1.5.2.5.2.3; 1.1.5.2.3-5.2/Q.737 [33]	Selection expression IntermE OR DLE	Q.788 [38] reference 2.15.2

Test purpose
UUS1 implicit - discard with indication generated
To verify that the IUT can successfully transit/accept a call with an UUS1 implicit request and set the **user-to-user indicators** to "user-to-user information discarded by the network" in the first backward message, if the network is unable to support it.

NOTE: The user-to-user information is discarded because the network does not support it.

Pre-test conditions
Arrange the data in the IUT such that the network does not support the UUS1 service.

```
Case a)
access                SPA                    SPB
 <------setup---------  <-----IAM(UUInf)------
 -------alert-------->  -----ACM(UUInf disc)->
```

1. Set up a call from UNI at SPB to SPA with user-to-user information.
2. Check "user-to-user information discarded by the network" in the first backward message (ACM).

```
Case b)
SPC                   SPA                    SPB
 <------IAM-----------  <-----IAM(UUInf)-----
 ---ACM(UUInf disc)-->  ---ACM(UUInf disc)-->
```

1. Set up a call from UNI at SPB to SPC with user-to-user information.
2. Check "user-to-user information discarded by the network" in the first backward message (ACM).

TSS UUS/UUS1_E/	TP ISS_V_6_1_7	ISUP'97 reference 1.1.5.2.1.1.2; 1.1.5.2.2-4.1/Q.737 [33]	Selection expression OLE OR IntermE	Q.788 [38] reference 2.15.3

Test purpose

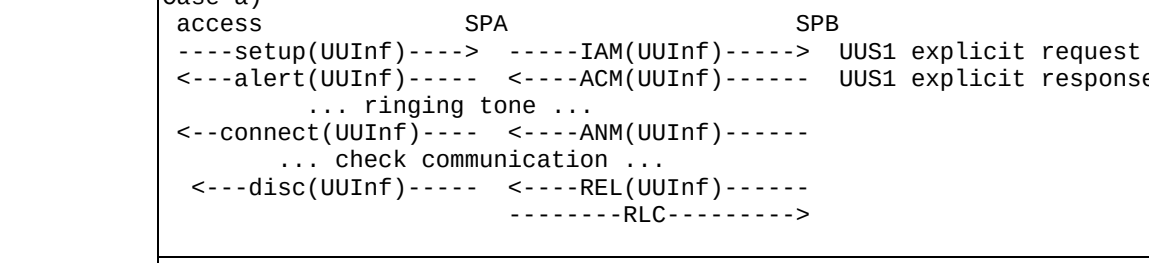
UUS1 explicit non-essential - request

To verify that the IUT can successfully initiate/transit a call with an UUS1 explicit non-essential request, by including/transferring the **user-to-user information** parameter and the **user-to-user indicators** in the **IAM** set to "request, not essential".

Pre-test conditions (in case of OLE)

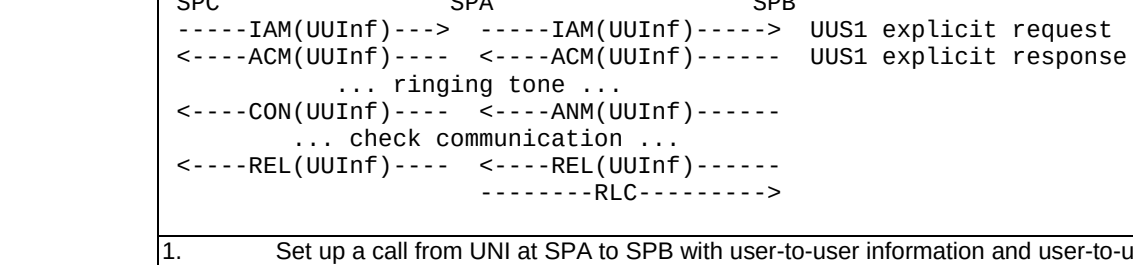
Arrange the data in the IUT so that the user has subscribed to the UUS1 supplementary service.

Case a)



1. Set up a call from UNI at SPA to SPB with user-to-user information.
2. Check that the Service 1 field in the UUInd is set to "request, not essential".

Case b)



1. Set up a call from UNI at SPA to SPB with user-to-user information and user-to-user service indicators.
2. Check that the Service 1 field in the UUInd is set to "request, not essential".

TSS UUS/UUS1_E/	TP ISS_I_6_1_8	ISUP'97 reference 1.1.5.2.5.2.3; 1.1.5.2.2-4.2/Q.737 [33]	Selection expression OLE OR IntermE	Q.788 [38] reference 2.15.5

Test purpose

UUS1 explicit non-essential - explicit rejection received

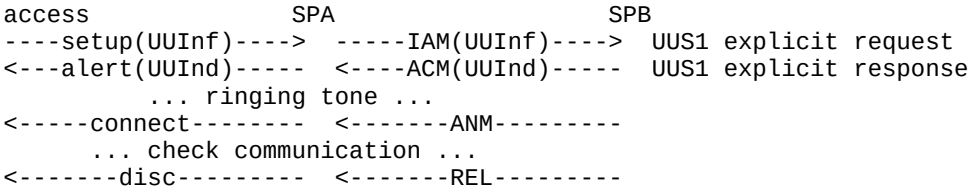
To verify that the IUT can successfully initiate/transit a call with an UUS1 explicit non-essential request, and continue normal call set up if the UUS1 service is explicitly rejected (the **user-to-user indicators** parameter is received as "service not provided" in the **ACM** or **CPG** or **ANM** or **CON** or **REL**).

NOTE: The user-to-user information is discarded because:
1) the network is unable to pass the explicit service 1 in any message;
2) the remote user may not be able to interpret incoming UUS information.

Pre-test conditions (in case of OLE)

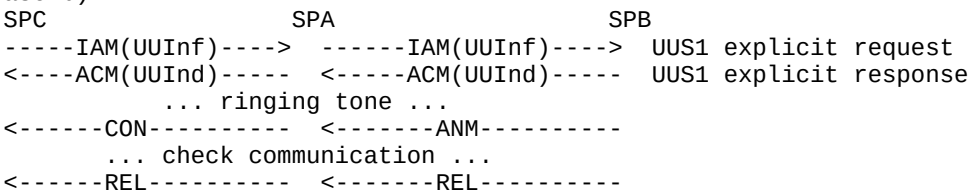
Arrange the data in the IUT so that the user has subscribed to the UUS1 supplementary service.

Case a)



1. Set up a call from UNI at SPA to SPB with user-to-user information and user-to-user service indicators.
2. Check the Service 1 field in the UUInd is set to "request, not essential".
3. Send the response "Service not provided" in the ACM.

Case b)



1. Set up a call from UNI at SPA to SPB with user-to-user information and user-to-user service indicators.
2. Check the Service 1 field in the UUInd is set to "request, not essential".
3. Send the response "Service not provided" in the ACM.

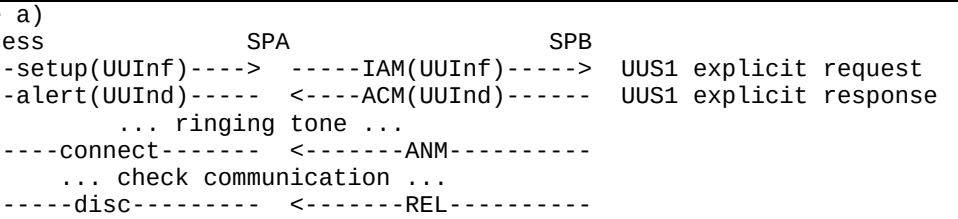
TSS UUS/UUS1_E/	TP ISS_I_6_1_9	ISUP'97 reference 1.1.5.2.5.2.3; 1.1.5.2.2-4.2/Q.737 [33]	Selection expression OLE OR IntermE	Q.788 [38] reference 2.15.4

Test purpose
UUS1 explicit non-essential - implicit (no explicit) rejection received
To verify that the IUT can successfully initiate/transit a call with an UUS1 explicit non-essential request, and continue normal call set up if no indication is provided in the backward direction.

NOTE: The user-to-user information is discarded because:
1) the network is unable to pass the explicit service 1 in any message;
2) the remote user may not be able to interpret incoming UUS information.

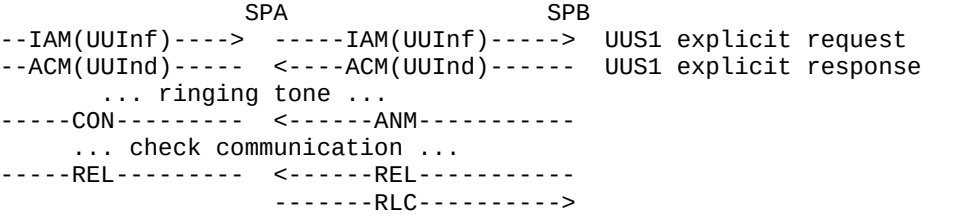
Pre-test conditions (in case of OLE)
Arrange the data in the IUT so that the user has subscribed to the UUS1 supplementary service.

Case a)



1. Set up a call from UNI at SPA to SPB with user-to-user information and user-to-user service indicators.
2. Check the Service 1 field in the UUInd is set to "request, not essential".
3. Send the response "no information" in the ACM.

Case b)

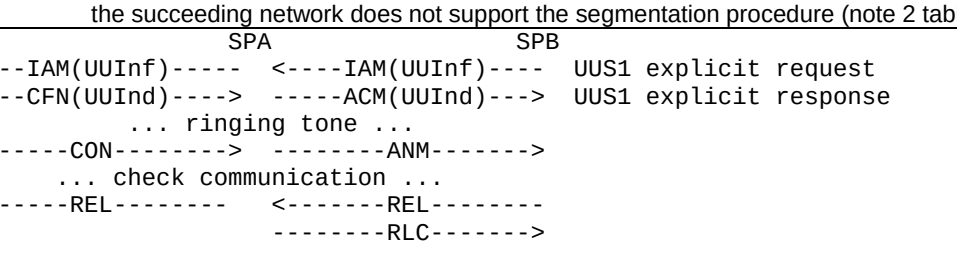


1. Set up a call from UNI at SPA to SPB with user-to-user information and user-to-user service indicators.
2. Check the Service 1 field in the UUInd is set to "request, not essential".
3. Send the response "no information" in the ACM.

TSS UUS/UUS1_E/	TP ISS_I_6_1_10	ISUP'97 reference 1.1.5.2.2.2; Table 1-1/Q.737 [33]	Selection expression Gateway AND PICS A.9/5	Q.788 [38] reference 2.15.5

Test purpose
UUS1 explicit non-essential rejection in Gateway
To verify that the UUS1 explicit non-essential service can be rejected and the **user-to-user indicators** are in the **ACM** or **CON** set to "service 1 not provided".

NOTE: The user-to-user service is rejected because:
1) the gateway received a **CFN** from the succeeding network (note 3 table 1-1).
2) the gateway has received **user-to-user information** in the **SGM** (Basic call PICS A.13/7) and the succeeding network does not support the segmentation procedure (note 2 table 1-1).

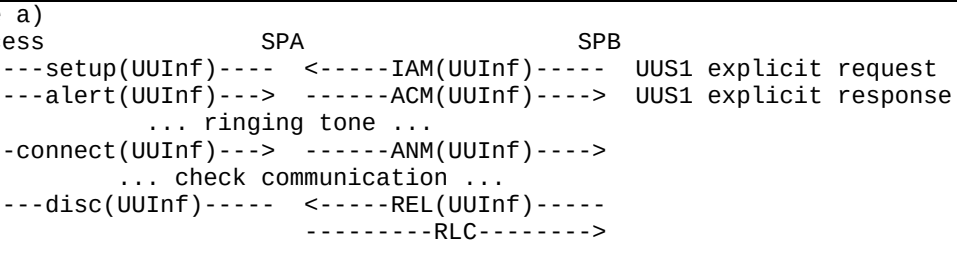


1. Set up a call from UNI at SPB to SPA with user-to-user information and user-to-user service indicators.
2. The Service 1 field in the UUInd is set to "request, not essential".
3. Check the response "Service not provided" in the ACM.

TSS UUS/UUS1_E/	TP ISS_V_6_1_11	ISUP'97 reference 1.1.5.2.1.1.2; 1.1.5.2.3-5.1/Q.737 [33]	Selection expression IntermE OR DLE	Q.788 [38] reference 2.15.3

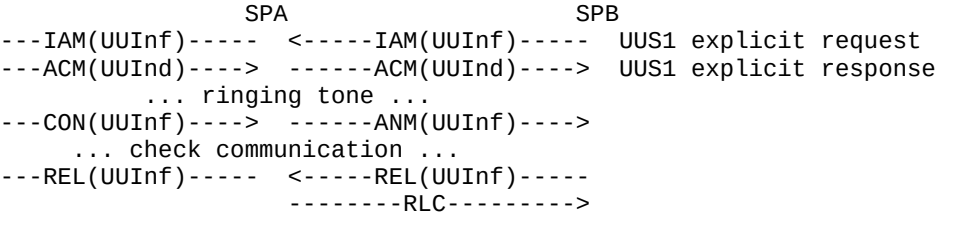
Test purpose
UUS1 explicit non-essential - acceptance
To verify that the IUT can successfully transit/accept a call with an UUS1 explicit non-essential request, by transferring/including the **user-to-user indicators** parameter in the **ACM, CPG, ANM**, **CON** or **REL** set to "service provided".
Pre-test conditions (in case of DLE)
Arrange the data in the IUT so that the user has subscribed to the UUS1 supplementary service.

Case a)



1. Set up a call from UNI at SPB to SPA with user-to-user information and user-to-user service indicators.
2. The Service 1 field in the UUInd is set to "request, not essential".
3. Check the response "Service provided" in the ACM.

Case b)



1. Set up a call from UNI at SPB to SPA with user-to-user information and user-to-user service indicators.
2. The Service 1 field in the UUInd is set to "request, not essential".
3. Check the response "Service provided" in the ACM.

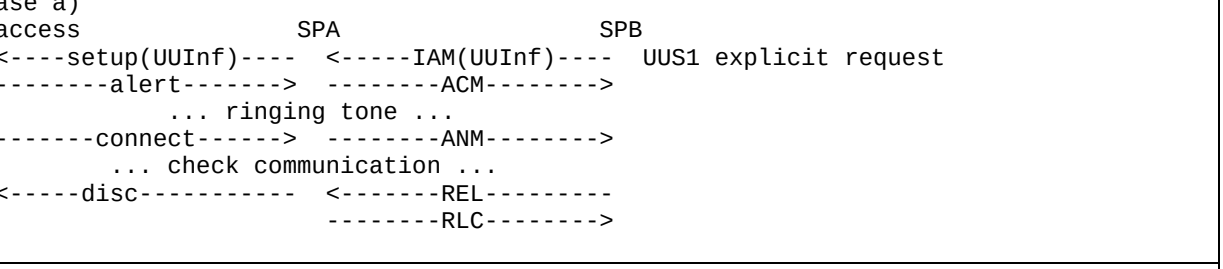
TSS UUS/NO_UUS1_E/	TP ISS_I_6_1_12	ISUP'97 reference 1.1.5.2.5.2.2; 1.1.5.2.2-5.2/Q.737 [33]	Selection expression IntermE OR DLE	Q.788 [38] reference 2.15.4

Test purpose
UUS1 explicit non-essential - implicit (no explicit) rejection sent
To verify that the IUT can transfer/accept a call with an UUS1 explicit non-essential request, and reject the service by not providing any **user-to-user indicators** parameter in the **ACM**, **CPG**, **ANM**, **CON** or **REL**.

NOTE: The network or the user cannot support UUS1.

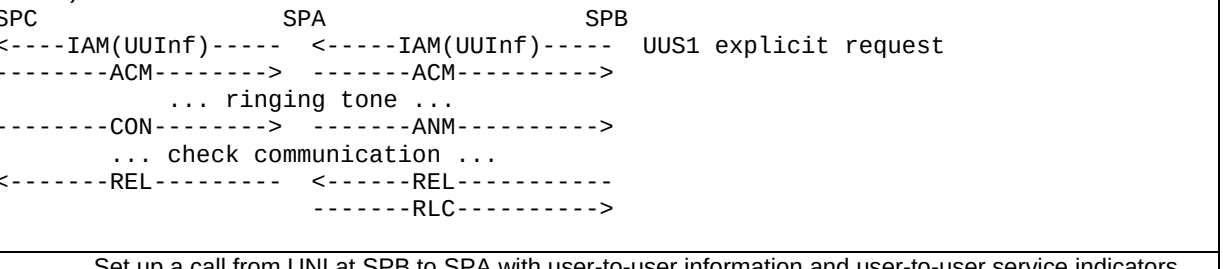
Pre-test conditions (in case of DLE)
Arrange the data in the IUT so that the network cannot support UUS1.

Case a)



1. Set up a call from UNI at SPB to SPA with user-to-user information and user-to-user service indicators.
2. The Service 1 field in the UUInd is set to "request, not essential".
3. Check that there is no user-to-user indicators parameter in the ACM.

Case b)



1. Set up a call from UNI at SPB to SPA with user-to-user information and user-to-user service indicators.
2. The Service 1 field in the UUInd is set to "request, not essential".
3. Check that there is no user-to-user indicators parameter in the ACM.

TSS UUS/UUS1_E/	TP ISS_V_6_1_13	ISUP'97 reference 1.1.5.2.1.1.2; 1.1.5.2.2-5.1/Q.737 [33]	Selection expression OLE OR IntermE	Q.788 [38] reference 2.15.3

Test purpose
UUS1 explicit essential - request
To verify that the IUT can successfully originate/transit a call having an UUS1 explicit essential request, by including/transferring in the **IAM** the **user-to-user information** parameter, the **user-to-user indicators** set to "request, essential" and the ISDN user part preference indicator in the **forward call indicators** set to "ISUP required all the way".
Pre-test conditions (in case of OLE)
Arrange the data in the IUT so that the user has subscribed to the UUS1 supplementary service.

```
Case a)
 access             SPA                    SPB
 ----setup(UUInf)--->  -----IAM(UUInf)---->  UUS1 explicit request
 <---alert(UUInf)----  <----ACM(UUInf)-----  UUS1 explicit response
           ... ringing tone ...
 <--connect(UUInf)---  <----ANM(UUInf)-----
       ... check communication ...
 <---disc(UUInf)-----  <----REL(UUInf)-----
                       -------RLC--------->
```

1. Set up a call from UNI at SPA to SPB with user-to-user information and user-to-user service indicators.
2. Check that the Service 1 field in UUInd is set to "request, essential" and the ISDN user part preference indicator in FCI is set to "ISUP required all the way".

```
Case b)
 SPC                SPA                    SPB
 ----IAM(UUInf)----->  -----IAM(UUInf)---->  UUS1 explicit request
 <---ACM(UUInf)------  <----ACM(UUInf)-----  UUS1 explicit response
           ... ringing tone ...
 <---CON(UUInf)------  <----ANM(UUInf)-----
         ... check communication ...
  <---REL(UUInf)------ <-----REL(UUInf)----
                       --------RLC-------->
```

1. Set up a call from UNI at SPA to SPB with user-to-user information and user-to-user service indicators.
2. Check that the Service 1 field in UUInd is set to "request, essential" and the ISDN user part preference indicator in FCI is set to "ISUP required all the way".

TSS UUS/UUS1_E/	TP ISS_I_6_1_14	ISUP'97 reference 1.1.5.2.5.2.2; 1.1.5.2.2-5.2/Q.737 [33]	Selection expression OLE OR Gateway	Q.788 [38] reference None

Test purpose

UUS1 explicit essential - implicit rejection (no explicit acceptance received)

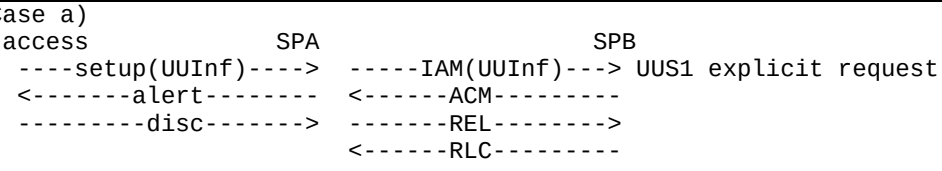
To verify that the service can be rejected if no indication (no **user-to-user indicators** parameter or the service 1 field in the **user-to-user indicators** set to "no information" or "not provided") is received in the first backward message (implicit rejection of service 1).

NOTE: The network does not understand the service 1 request. In this case the call should be released.

Pre-test conditions (in case of OLE)

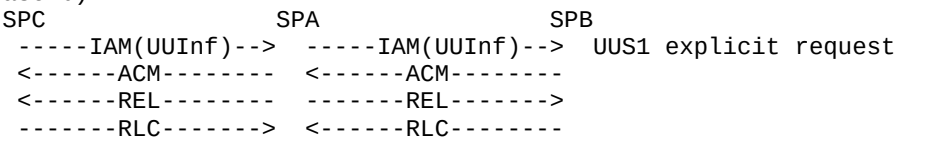
Arrange the data in the IUT so that the user has subscribed to the UUS1 supplementary service.

Case a)



1. Set up a call UNI at SPA to SPB with user-to-user information and user-to-user service indicators.
2. Check that the service 1 field in UUInd is set to "request, essential" and the ISDN user part preference indicator in FCI is set to "ISUP required all the way".
3. The call should be released with cause #29 or #69, because the user-to-user indicators parameter in the ACM is received with "no information" about the service 1.

Case b)

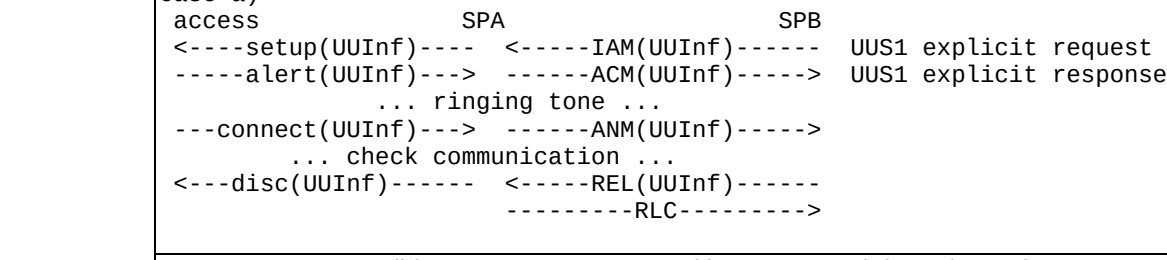


1. Set up a call UNI at SPA to SPB with user-to-user information and user-to- user service indicators.
2. Check that the Service 1 field in UUInd is set to "request, essential" and the ISDN user part preference indicator in FCI is set to "ISUP required all the way".
3. The call should be released with cause #29 or #69, because the user-to-user indicators parameter in the ACM is received with "no information" about the service 1.

TSS UUS/UUS1_E/	TP ISS_V_6_1_15	ISUP'97 reference 1.1.5.2.1.1.2; 1.1.5.2.2-5.1/Q.737 [33]	Selection expression DLE OR IntermE	Q.788 [38] reference 2.15.3

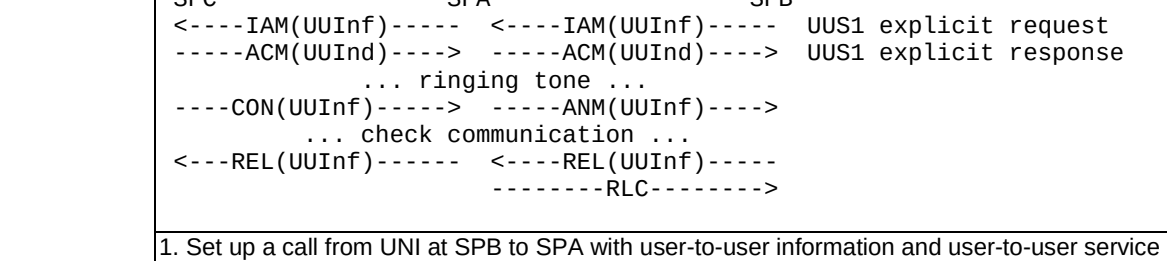
Test purpose
UUS1 explicit essential - acceptance
To verify that the IUT can successfully complete a call with an UUS1 explicit essential request having the **user-to-user indicators** parameter in the **ACM**, **CPG**, **ANM**, **CON** or **REL** set to "service provided".
Pre-test conditions (in case of DLE)
Arrange the data in the IUT so that the user has subscribed to the UUS1 supplementary service.

Case a)



1. Set up a call from UNI at SPB to SPA with user-to-user information and user-to-user service indicators.
2. The Service 1 field in the UUInd is set to "request, essential".
3. Check the response "Service provided" in the ACM.

Case b)



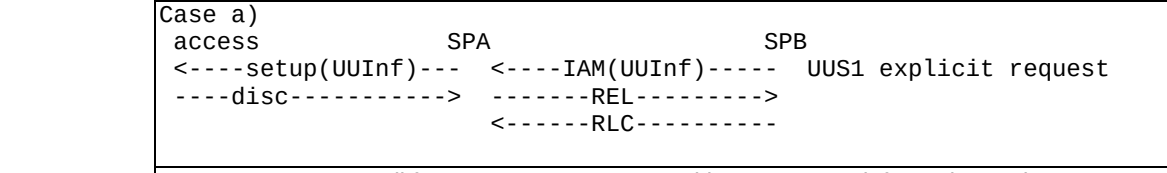
1. Set up a call from UNI at SPB to SPA with user-to-user information and user-to-user service indicators.
2. The Service 1 field in the UUInd is set to "request, essential".
3. Check the response "Service provided" in the ACM.

TSS UUS/NO_UUS1_E/	TP ISS_I_6_1_16	ISUP'97 reference 1.1.5.2.5.2.2; 1.1.5.2.2-5.2/Q.737 [33]	Selection expression DLE OR IntermE	Q.788 [38] reference 2.15.6; 2.15.7

Test purpose
UUS1 explicit essential - rejection
To verify that the service can be rejected with a **REL** having the **Cause value** 29 "facility rejected" or 69 "requested facility not implemented", either with diagnostics (specifying the name of the user-to-user indicator parameter).

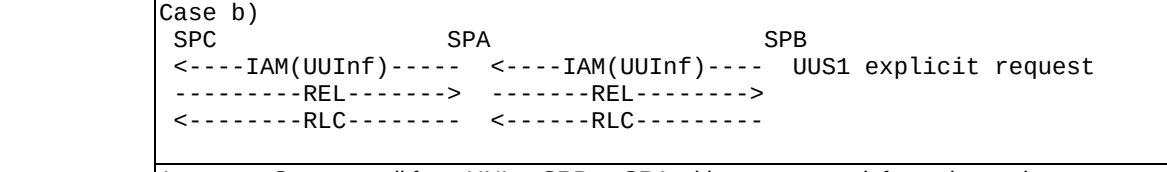
NOTE: The network or the called user cannot support the service

Case a)



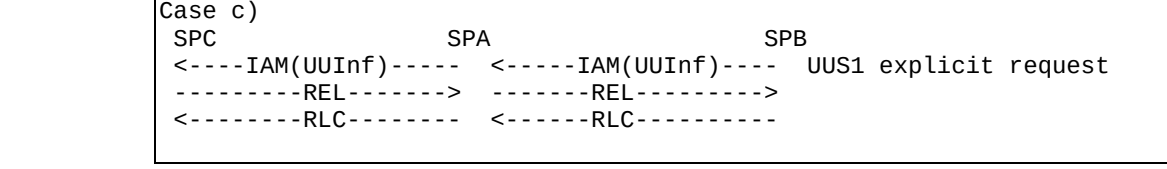
1. Set up a call from UNI at SPB to SPA with user-to-user information and user-to-user service indicators.
2. The call should be released with cause #29 or #69.

Case b)



1. Set up a call from UNI at SPB to SPA with user-to-user information and user-to-user service indicators.
2. The call should be released with cause #29.

Case c)



1.	Set up a call from UNI at SPB to SPA with user-to-user information and user-to-user service indicators.
2.	The call should be released with cause #69.

TSS UUS/UUS1_E/	TP ISS_V_6_1_17	ISUP'97 reference 1.1.6.13.2; 1.1.6.13.3/Q.737 [33]	Selection expression Local AND (PICS A.9/6 OR PICS A.9/8)	Q.788 [38] reference None

Test purpose
UUS1 interaction with UUS2 (or UUS3) - successful request
To verify that more than one UUS supplementary service may be requested at call set up.
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS1 and UUS2 (or UUS3) supplementary services.

```
Case a)
 access              SPA                 SPB
 ----setup(UUInf)--->  -----IAM(UUInf)--->  UUS1, 2 explicit request
 <---alert(UUInf)----  <----ACM(UUInf)----  UUS1, 2 explicit response
             ... ringing tone ...
-----user info------>  ------USR--------->
<----user info-------  <-----USR----------
<---connect(UUInf)---  <----ANM(UUInf)----
           ... check communication ...
<----disc(UUInf)-----  <----REL(UUInf)----
                       ------RLC--------->
```

1.	Set up a call from UNI at SPA to SPB with user-to-user information and user-to-user service indicators.
2.	Check that the Service 1, 2 fields in UUInd are set each to "request, not essential".
3.	Support of Service 2

```
Case b)
 access               SPA                 SPB
 <----setup(UUInf)----  <---IAM(UUInf)---- UUS1, 3 explicit request
 -----alert(UUInf)--->  ----ACM(UUInf)---> UUS1 explicit response
             ... ringing tone ...
------conn(UUInf)---->  ----ANM(UUInf)---> UUS3 explicit response
          ... check communication ...
<-----user info-------  <-----USR---------
------user info------>  ------USR-------->
<-----disc(UUInf)-----  <---REL(UUInf)----
                        ------RLC-------->
```

1.	Set up a call from UNI at SPB to SPA with user-to-user information and user-to-user service indicators.
2.	The Service 1, 3 fields in UUInd are set each to "request, not essential"
3.	Support of Service 3.

TSS UUS/UUS1_E/	TP ISS_V_6_1_18	ISUP'97 reference 1.1.6.13.2; 1.1.6.13.3/Q.737 [33]	Selection expression DLE AND (PICS A.9/6 OR PICS A.9/8)	Q.788 [38] reference None

Test purpose
UUS1 interaction with UUS2 (or UUS3) - unsuccessful request
To verify that the services can be rejected with a **REL** having the **Cause value** #29 "facility rejected" or #69 "requested facility not implemented", either with diagnostics (**user-to-user indicators** name), if more services are requested, one of them is essential and it cannot be provided.
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS1 and UUS2 (or UUS3) supplementary services.

```
 access              SPA                 SPB
 <--setup(UUInf)---  <-----IAM(UUInf)---- UUS1, 2, 3 explicit request
 -------disc------>  --------REL-------->
                     <-------RLC---------
```

1.	Set up a call UNI at SPB to SPA with user-to-user information and user-to-user service indicators.
2.	The call should be released with cause #29 or #69, because the service 2 cannot be provided.

TSS UUS/UUS1_E/	TP ISS_V_6_1_19	ISUP'97 reference 1.1.6.13.2; 1.1.6.13.3/Q.737 [33]	Selection expression Local AND (PICS A.9/6 OR PICS A.9/8)	Q.788 [38] reference None

Test purpose

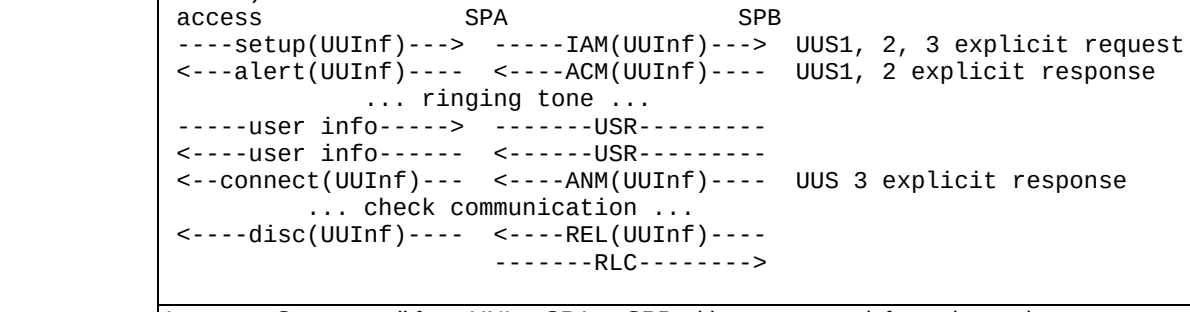
UUS1 interaction with UUS2 (or UUS3) - independent acceptance or rejection of the services

To verify that the IUT can successfully complete a call with an UUS1 explicit non-essential request, having the **user-to-user indicators** parameter in the **ACM, CPG, ANM, CON** or **REL** set to "service provided". At the same time the UUS2 (or UUS3) service can be rejected and the **user-to-user indicators** in the **ACM**, **CPG**, **ANM**, **CON** or **REL** are set to "service 2 (or 3) not provided".

Pre-test conditions

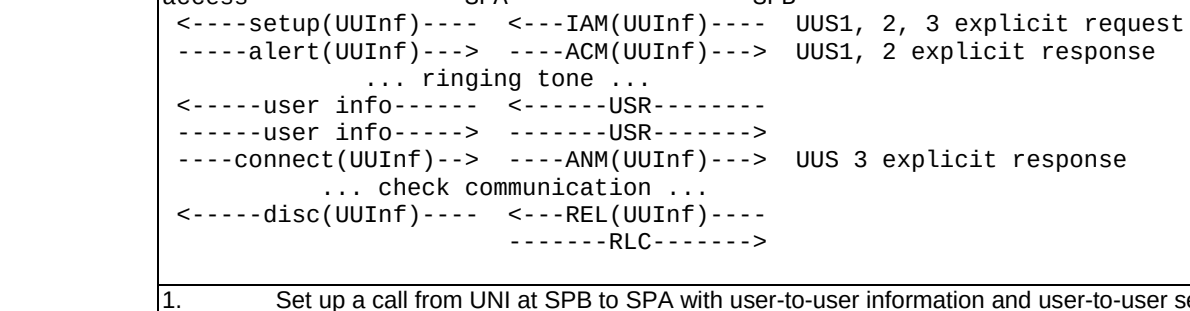
Arrange the data in the IUT so that the user has subscribed to the UUS1 and UUS2 (or UUS3) supplementary services.

Case a)



1. Set up a call from UNI at SPA to SPB with user-to-user information and user-to-user service indicators.
2. Check that the Service 1, 2, 3 fields in UUInd are set each to "request, not essential".
3. Support of Service 2.

Case b)



1. Set up a call from UNI at SPB to SPA with user-to-user information and user-to-user service indicators.
2. The Service 1, 2, 3 fields in UUInd are set each to "request, not essential".
3. Support of Service 2.

TSS UUS/UUS1_E/	TP ISS_V_6_1_20	ISUP'97 reference 1.1.6.13.3; 1.1.6.13.1/Q.737 [33]	Selection expression Local AND PICS A.9/8	Q.788 [38] reference None

Test purpose
UUS1 interaction with UUS3 requested after call set up
To verify that the IUT can successfully originate/complete a call with UUS1, having requested UUS3 after call set up. The Service 1 field in the **user-to-user indicators** in the **FAR, FAA** or **FRJ** for UUS1 is then set to "no information".
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS1 and UUS3 supplementary services.

Case a)

```
 access             SPA                     SPB
 ----setup(UUInf)--->  -----IAM(UUInf)----->  UUS1 explicit request
 <---alert(UUInf)----  <----ACM(UUInf)------  UUS1 explicit response
           ... ringing tone ...
 <--connect(UUInf)---  <-----ANM(UUInf)-----
         ... check communication ...
 ----facility-req--->  --------FAR--------->  UUS3 request
 <---facility-ind----  <-------FAA----------  UUS3 response
 -----user info----->  --------USR----------
 <----user info------  <-------USR----------
 <----disc(UUInf)----  <-----REL(UUInf)-----
                       --------RLC--------->
```

1. Set up a call from UNI at SPA to SPB with user-to-user information and user-to-user service indicators.
2. Check that the Service 1 fields in UUInd is set to "request, not essential".
3. Check request of service 3 in FAR.

Case b)

```
 access              SPA                   SPB
 <---setup(UUInf)----  -----IAM(UUInf)-----  UUS1 explicit request
 ----alert(UUInf)--->  -----ACM(UUInf)---->  UUS1 explicit response
             ... ringing tone ...
 ---connect(UUInf)-->  -----ANM(UUInf)---->
          ... check communication ...
 <---facility-req----  <------FAR----------  UUS3 request
 ----facility-ind--->  -------FAA--------->  UUS3 response
 <----user-info------  <------USR----------
 -----user-info----->  -------USR--------->
 <----disc(UUInf)----  <----REL(UUInf)-----
                       -------RLC--------->
```

1. Set up a call from UNI at SPB to SPA with user-to-user information and user-to-user service indicators.
2. Check that the Service 1 fields in UUInd is set to "request, not essential".
3. The service 3 is requested in FAR.
4. The service 3 is provided in FAA.
5. Send/Receive user-to-user information.

TSS UUS/UUS1_E/	TP ISS_V_6_1_21	ISUP'97 reference 1.1.6.15/Q.737 [33]	Selection expression Local AND PICS A.3/16 (HOLD)	Q.788 [38] reference None

Test purpose
UUS1 interaction with HOLD - to a held party
To verify that the IUT can successfully complete a call including an **user-to-user information** (service 1) to a held party during the clearing phase of a call.
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS1 and HOLD supplementary services.

```
 access            SPA                  SPB
 <------setup------  <-------IAM--------
 -------alert----->  --------ACM------->
           ... ringing tone ...
 -------hold------>  --------CPG------->
 -------disc------>  --------REL------->  UUInf present
```

1. IAM, ACM, CPG may contain UUInf.
2. Check that UUInf is received in the REL.

TSS UUS/UUS1_E/	TP ISS_V_6_1_22	ISUP'97 reference 1.1.6.15/Q.737 [33]	Selection expression Local AND PICS A.3/16 (HOLD)	Q.788 [38] reference None

Test purpose
UUS1 interaction with HOLD - from a held party
To verify that the IUT can successfully complete a call including an **user-to-user information** (service 1) from a held party during the clearing phase of a call.
Pre-test conditions
Arrange the data in the IUT so that the remote user has subscribed to the UUS1 and HOLD supplementary services.

```
 access            SPA                 SPB
 <------setup------ <-------IAM--------
 -------alert-----> --------ACM------->
           ... ringing tone ...
 -------hold------> --------CPG------->
 <------disc------- <-------REL--------  UUInf present
                    --------RLC------->
```

1. IAM, ACM, CPG may contain UUInf.
2. Send UUInf in the REL.

TSS UUS/UUS1_E/	TP ISS_V_6_1_23	ISUP'97 reference 3.6.13/ EN 300 356-20 [22]	Selection expression OLE AND PICS A.3/18	Q.788 [38] reference None

Test purpose
New UUS1 requested in CCBS recall
To verify that the IUT does not store any user-to-user information contained in the original call. The CCBS call (IAM) sent by the IUT should not contain any user-to-user information if no new user-to-user information is provided from the served user in response to the CCBS recall.
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS1 and CCBS supplementary services.

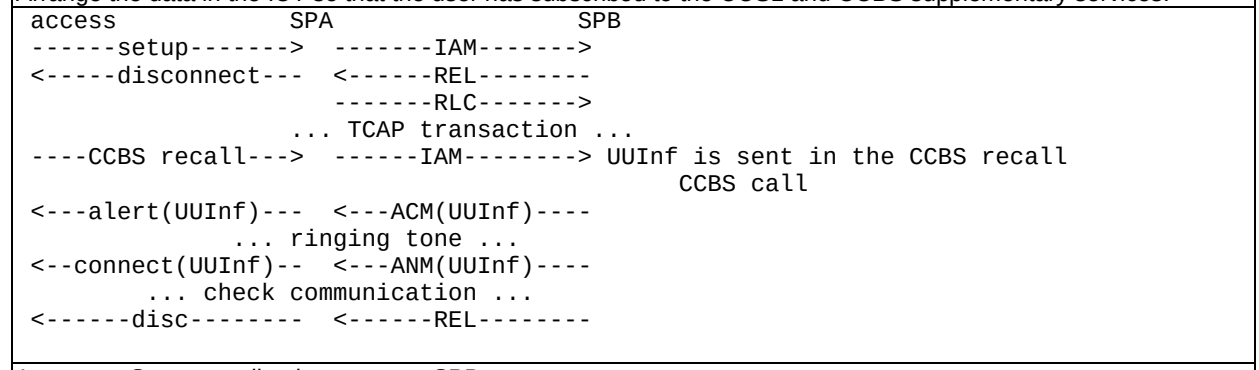
```
 access             SPA                 SPB
 -------setup-------> --------IAM--------> UUInf present
 <------disconnect--- <-------REL---------
                     --------RLC-------->
              ... TCAP transaction ...

 -----CCBS recall---> --------IAM--------> No new UUInf is sent in the CCBS recall
 :                                         CCBS call
 <------disc-------- <--------REL--------
```

1. Set up a call to busy user at SPB. The received IAM contains UUInf.
2. User at SPB is found busy. Check that the UUInf is received in the IAM.
3. Check that user at SPB becomes free by using the RemoteUserFree CCBS ASE operation.
4. Check Indication "CCBS call" in the IAM. Check that no UUInf is received in the IAM.

TSS UUS/UUS1_E/	TP ISS_V_6_1_24	ISUP'97 reference 3.6.13/ EN 300 356-20 [22]	Selection expression OLE AND PICS A.3/18	Q.788 [38] reference None

Test purpose
UUS1 interaction with CCBS
To verify that the IUT is able to include user-to-user information in the CCBS call (IAM) if the served user includes user-to-user information in response to the CCBS recall.
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS1 and CCBS supplementary services.

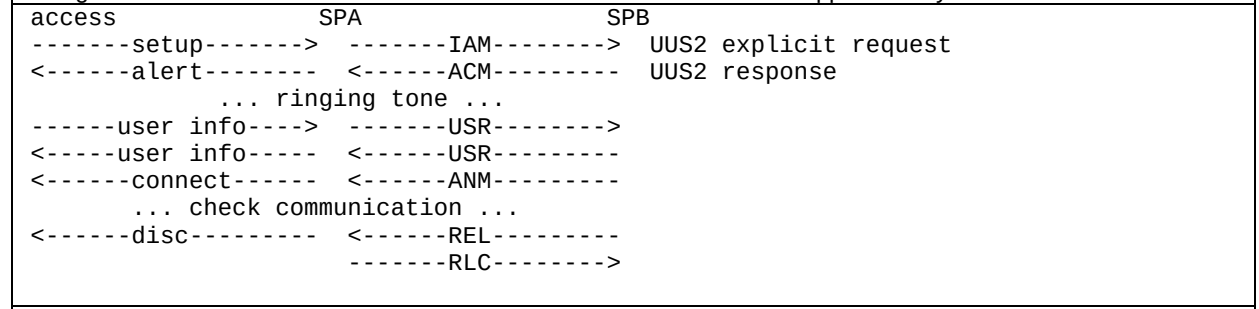


1. Set up a call to busy user at SPB.
2. User at SPB is found busy.
3. Check that user at SPB becomes free by using the RemoteUserFree CCBS ASE operation.
4. Check Indication "CCBS call" in the IAM. Check that UUInf is received in the IAM.

6.2.6.2 User-to-user signalling service 2 (UUS2)

TSS UUS/UUS2/	TP ISS_V_6_2_1	ISUP'97 reference 1.2.2.1/Q.737 [33]	Selection expression OLE AND PICS A.9/1	Q.788 [38] reference None

Test purpose
32 octets user-to-user information
To verify that the IUT can successfully initiate a call having 32 octets of **user-to-user information** in the USR messages during call set up.
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS2 supplementary service.

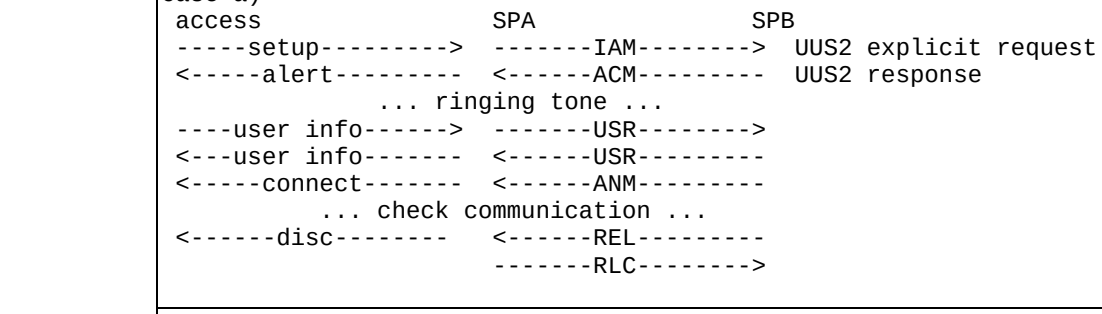


1. Set up a call from UNI at SPA to SPB with user-to-user service 2 request.
2. Check that the user-to-user information field in the USR contains 32 octets.

TSS UUS/UUS2/	TP ISS_V_6_2_2	ISUP'97 reference 1.2.5.2.1.1.2; 1.2.5.2.2-5.1/Q.737 [33]	Selection expression OLE OR IntermE	Q.788 [38] reference 2.16.1

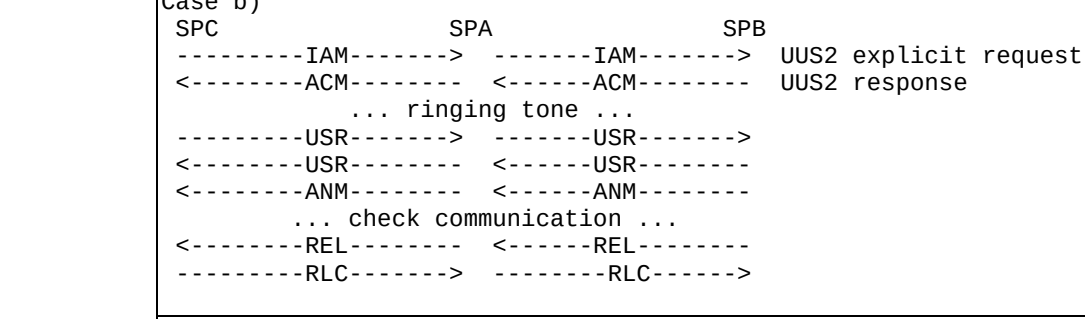
Test purpose
UUS2 explicit non-essential - request
To verify that the IUT can successfully originate/transit a call with an UUS2 explicit non-essential request, having the **user-to-user indicators** in the **IAM** set to "request, not essential".
Pre-test conditions (in case of OLE)
Arrange the data in the IUT so that the user has subscribed to the UUS2 supplementary service.

Case a)



1. Set up a call from UNI at SPA to SPB with user-to-user service 2 request.
2. The Service 2 field in the UUInd is set to "request, not essential".
3. Receive user-to-user information.
4. Send user-to-user information.

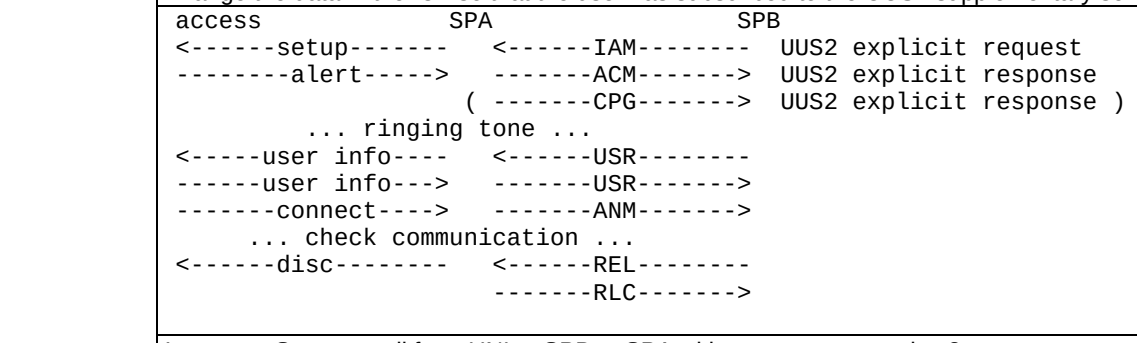
Case b)



1. Set up a call from UNI at SPC to SPB with user-to-user service 2 request.
2. Check the Service 2 field in the UUInd is set to "request, not essential".
3. Receive user-to-user information.
4. Send user-to-user information.

TSS UUS/UUS2/	TP ISS_V_6_2_3	ISUP'97 reference 1.2.5.2.1.1.2; 1.2.5.2.2-5.1/Q.737 [33]	Selection expression DLE OR IntermE	Q.788 [38] reference 2.16.1

Test purpose
UUS2 explicit non-essential - acceptance
To verify that the IUT can successfully complete a call with an UUS2 explicit non-essential request, having the **user-to-user indicators** parameter in the **ACM** or **CPG** set to "service provided".
Pre-test conditions (in case of DLE)
Arrange the data in the IUT so that the user has subscribed to the UUS2 supplementary service.

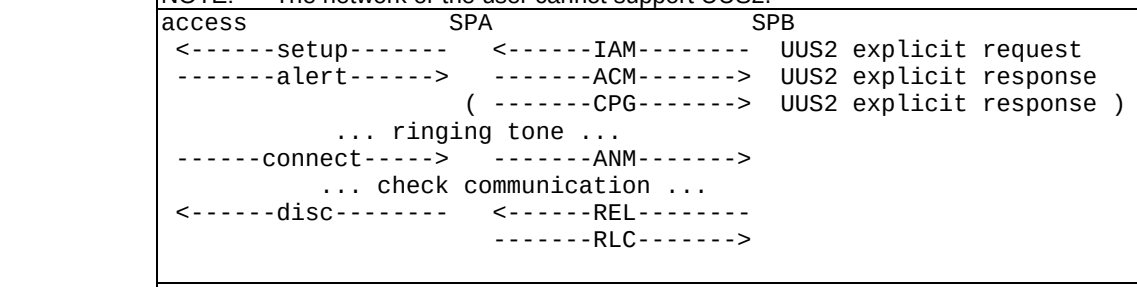


1. Set up a call from UNI at SPB to SPA with user-to-user service 2 request.
2. The Service 2 field in the UUInd is set to "request, not essential".
3. Check the response "Service provided" in the ACM or in CPG.
4. Send user-to-user information.
5. Receive user-to-user information.

TSS UUS/NO_UUS2/	TP ISS_I_6_2_4	ISUP'97 reference 1.2.5.2.5.2.2; 1.2.5.2.2-5.2/Q.737 [33]	Selection expression DLE or IntermE	Q.788 [38] reference 2.16.3

Test purpose
UUS2 explicit non-essential - explicit rejection (service not provided)
To verify that the UUS2 service can be rejected and the **user-to-user indicators** in the **ACM** or **CPG** are set to "service 2 not provided".

NOTE: The network or the user cannot support UUS2.



1. Set up a call from UNI at SPB to SPA with user-to-user service 2 request.
2. The Service 2 field in the UUInd is set to "request, not essential".
3. Check the response "Service not provided" in the ACM or in CPG.

TSS UUS/NO_UUS2/	TP ISS_I_6_2_5	ISUP'97 reference 1.2.5.2.5.2.3; 1.2.5.2.2-5.2/Q.737 [33]	Selection expression DLE OR IntermE	Q.788 [38] reference 2.16.2

Test purpose
UUS2 explicit non-essential - implicit rejection (no indication)
To verify that the IUT can successfully complete a call with an UUS2 explicit non-essential request, if no indication is provided in the backward direction.

NOTE: The network or the user cannot support UUS2.

```
access              SPA                  SPB
 <------setup------   <------IAM--------  UUS2 explicit request
 -------alert------>   -------ACM------->  UUS2 explicit response - no if
           ... ringing tone ...
 ------connect----->   -------ANM------->
          ... check communication ...
 <------disc--------   <------REL--------
                       -------RLC------->
```

1. Set up a call from UNI at SPB to SPA with user-to-user service 2 request.
2. The Service 2 field in the UUInd is set to "request, not essential".
3. Check the response "No information" in the ACM or in CPG.

TSS UUS/UUS2/	TP ISS_V_6_2_6	ISUP'97 reference 1.2.5.2.1.1.2; 1.2.5.2.2-5.1/Q.737 [33]	Selection expression OLE OR IntermE	Q.788 [38] reference 2.16.1

Test purpose
UUS2 explicit essential - request
To verify that the IUT can successfully originate/transit a call having an UUS2 explicit essential request, having the **user-to-user indicators** set to "request, essential" and the ISDN user part preference indicator of the **forward call indicators** in the **IAM** set to "ISUP required".
Pre-test conditions (in case of OLE)
Arrange the data in the IUT so that the user has subscribed to the UUS2 supplementary service.

Case a)

```
 access             SPA                 SPB
 --------setup------>  --------IAM------> UUS2 explicit request
 <-------alert-------  <-------ACM------- UUS2 response
           ... ringing tone ...
 ------user info---->  --------USR------>
 <-----user info-----  <-------USR-------
 <-------connect-----  <-------ANM-------
          ... check communication ...
 <-------disc--------  <-------REL-------
                       --------RLC------>
```

1. Set up a call from UNI at SPA to SPB with user-to-user service 2 request.
2. Check the Service 2 field in the UUInd is set to "request, essential" in the IAM.
3. Receive user-to-user information.
4. Send user-to-user information.

Case b)

```
 SPC                SPA                  SPB
 ---------IAM------>  --------IAM------> UUS2 explicit request
 <--------ACM-------  <-------ACM------- UUS2 response
           ... ringing tone ...
 ---------USR------>  --------USR------>
 <--------USR-------  <-------USR-------
 <--------ANM-------  <-------ANM-------
        ... check communication ...
 <--------REL-------  <-------REL-------
  --------RLC------>  --------RLC------>
```

1. Set up a call from UNI at SPC to SPB with user-to-user service 2 request.
2. Check the Service 2 field in the UUInd is set to "request, essential" in the IAM.
3. Receive user-to-user information.
4. Send user-to-user information.

TSS UUS/UUS2/	TP ISS_V_6_2_7	ISUP'97 reference 1.2.5.2.1.1.2; 1.2.5.2.2-5.1/Q.737 [33]	Selection expression DLE OR IntermE	Q.788 [38] reference 2.16.1

Test purpose
UUS2 explicit essential - acceptance
To verify that the IUT can successfully complete a call having an UUS2 explicit essential request having the **user-to-user indicators** parameter in the **ACM** or **CPG** set to "service provided".
Pre-test conditions (in case of DLE)
Arrange the data in the IUT so that the user has subscribed to the UUS2 supplementary service.

```
 access              SPA                   SPB
 <------setup-------   <-------IAM-------  UUS2 explicit request
 -------alert------>   --------ACM------>  UUS2 explicit response
                     ( --------CPG------>  UUS2 explicit response )
           ... ringing tone ...
 <----user info-----   <-------USR-------
 -----user info---->   --------USR------>
 ------connect------>   --------ANM------>
        ... check communication ...
 <-----disc---------   <-------REL-------
                       --------RLC------>
```

1. Set up a call from UNI at SPB to SPA with user-to-user service 2 request.
2. The Service 2 field in the UUInd is set to "request, essential".
3. Check the response "Service provided" in the ACM or CPG.
4. Send user-to-user information.
5. Receive user-to-user information.

TSS UUS/NO_UUS2/	TP ISS_I_6_2_8	ISUP'97 reference 1.2.5.2.5.2.1; 1.2.5.2.2-5.2/Q.737 [33]	Selection expression DLE OR IntermE	Q.788 [38] reference 2.16.4; 2.16.5

Test purpose
UUS2 explicit essential - rejection
To verify that the service can be rejected with a **REL** with the **Cause value** 29 "facility rejected" or 69 "requested facility not implemented" or value 88 "incompatible destination", all with diagnostics (**user-to-user indicators** name).

Case a)

```
 access             SPA                 SPB
 <------setup------   <------IAM--------  UUS2 explicit request
 --------disc----->   -------REL------->
                      <------RLC--------
```

1. Set up a call from UNI at SPB to SPA with user-to-user service 2 request.
2. The call should be released with cause #26, #69 or #88.

Case b)

```
 SPC                SPA                 SPB
 <-------IAM-------   <-------IAM--------  UUS2 explicit request
 --------CFN------->
 <-------REL-------   --------REL------->
 --------RLC------>   <-------RLC--------
```

1. Set up a call from UNI at SPB to SPC with user-to-user service 2 request.
2. The call should be released with cause #26, #69 or #88.

TSS UUS/UUS2/	TP ISS_I_6_2_9	ISUP'97 reference 1.2 5.2.5.2.1; 1.2.5.2.2-5.2/Q.737 [33]	Selection expression OLE or Interm	Q.788 [38] reference None

Test purpose
UUS2 explicit essential - implicit rejection
To verify that the service can be rejected if no indication is received (no **user-to-user indicators** parameter) in the first backward message (implicit rejection of service 2).

NOTE: The remote network does not understand the service 2 request or the remote user cannot support UUS2.

Pre-test conditions (in case of OLE)
Arrange the data in the IUT so that the user has subscribed to the UUS2 supplementary service.

Case a)

```
 access            SPA               SPB
 -------setup-----> -------IAM-------> UUS2 explicit request
                    <------ACM--------
 <-------disc------ -------REL------->
                    <------RLC--------
```

1. Set up a call from UNI at SPA to SPB with user-to-user service 2 request.
2. Check the Service 2 field in the UUInd is set to "request, essential" in the IAM.
3. Call released because there is no UUInd in the ACM.

Case b)

```
 SPC               SPA               SPB
 -------IAM-------> -------IAM-------> UUS2 explicit request
                    <------ACM--------
 <------REL-------- -------REL------->
 -------RLC-------> <------RLC--------
```

1. Set up a call from SPC to SPA with user-to-user service 2 request.
2. Check the Service 2 field in the UUInd is set to "request, essential" in the IAM.
3. Call released because there is no UUInd in the ACM.

TSS UUS/UUS2/	TP ISS_V_6_2_10	ISUP'97 reference 1.2.5.2.1.1.2/Q.737 [33]	Selection expression OLE	Q.788 [38] reference None

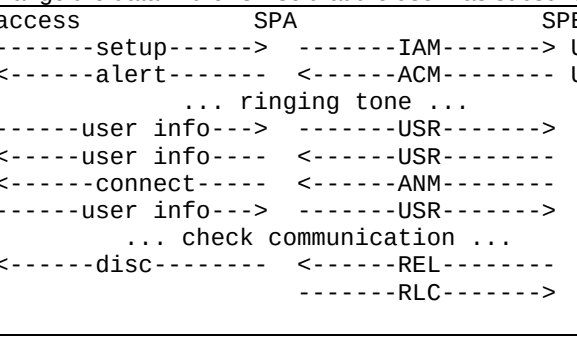
Test purpose
Discard the user-to-user information if more than two messages received during a call set up
To verify that the IUT discards the **user-to-user service information** in the additional message if more than two messages are received during the call set up (in each direction).
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS2 supplementary service.

```
 access             SPA                  SPB
 -------setup------> -------IAM--------> UUS2 explicit request
 <-------alert------ <------ACM--------  UUS2 response
             ... ringing tone ...
 -----user info----> -------USR-------->
 <----user info-----  <------USR---------
 -----user info----> -------USR-------->
 <----user info-----  <------USR---------
 -----user info---->        no USR
 <-----connect------ <------ANM---------
          ... check communication ...
 <------disc--------  <------REL---------
                     -------RLC-------->
```

1. Set up a call from UNI at SPA to SPB with user-to-user service 2 request.
2. Check the Service 2 field in the UUInd is set to "request, not essential" in the IAM.
3. Check the receipt of two USR during call set up.
4. Send user-to-user information.

TSS UUS/UUS2/	TP ISS_I_6_2_11	ISUP'97 reference 1.2.5.2.1.1.2/Q.737 [33]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Pass on one of the USR received just after ANM
To verify that the IUT can successfully pass on one of the **USR** messages received just after the answer state has been reached.
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS2 supplementary service.

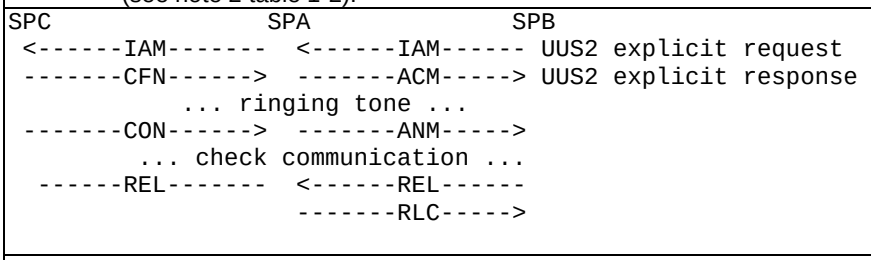


1. Set up a call from UNI at SPA to SPB with user-to-user service 2 request.
2. Check the Service 2 field in the UUInd is set to "request, not essential" in the IAM.
3. Check one user-to-user information during call set up.
4. Send user-to-user information.
5. Check one user-to-user information after ANM.

TSS UUS/NO_UUS2/	TP ISS_I_6_2_12	ISUP'97 reference 1.2.5.2.2.2 Table 1-2; 1.2.7/Q.737 [33]	Selection expression Gateway AND PICS A.9/5	Q.788 [38] reference 2.16.3

Test purpose
Explicit rejection in Gateway
To verify that the UUS2 explicit non-essential service can be rejected and the **user-to-user indicators** in the **ACM** or **CON** are set to "service 2 not provided".

NOTE: The user-to-user service is rejected because the IntermE received a **CFN** from the succeeding network (see note 2 table 1-2).



1. Set up a call from UNI at SPB to SPA with user-to-user service 2 request.
2. The Service 2 field in the UUInd is set to "request, not essential".
3. Check the response "Service not provided" in the ACM or CON.

TSS UUS/UUS2/	TP ISS_I_6_2_13	ISUP'97 reference 1.2.2.1/Q.737 [33]	Selection expression DLE AND PICS A.9/7	Q.788 [38] reference None

Test purpose
Deliver user-to-user information in USR after ANM
To verify that the IUT can successfully deliver the **user-to-user information** in the **USR** message to the called user after the answer state has been reached.
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS2 supplementary service.

```
 access              SPA                    SPB
 <------setup--------  <------IAM--------  UUS2 explicit request
 -------alert------->  -------ACM------->  UUS2 explicit response
             ... ringing tone ...
 <-----user info-----  <------USR--------
 ------user info---->  -------USR------->
 -------connect----->  -------ANM------->
 <-----user info-----  <------USR--------
           ... check communication ...
 <------disc---------  <------REL--------
                       -------RLC------->
```

1. Set up a call from UNI at SPB to SPA with user-to-user service 2 request.
2. The Service 2 field in the UUInd is set to "request, not essential".
3. Check the response "Service provided" in the ACM.
4. Send user-to-user information.
5. Receive user-to-user information.
6. Send one user-to-user information after ANM.

TSS UUS/UUS2/	TP ISS_V_6_2_14	ISUP'97 reference 1.2.6.13.1; 1.2.6.13.3/Q.737 [33]	Selection expression Local AND (PICS A.9/4 OR PICS A.9/8)	Q.788 [38] reference None

Test purpose
UUS2 interaction with UUS1 (or UUS3) - unsuccessful request
To verify that the services can be rejected with a **REL** with **Cause value** #29 "facility rejected" or #69 "requested facility not implemented", either with diagnostics (**user-to-user indicators** name), if more services are requested, one of them is essential and it cannot be provided.
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS1 and UUS2 (or UUS3) supplementary services.

Case a)

```
 access              SPA                    SPB
 <----setup(UUInf)---  <----IAM(UUInf)----- UUS1, 2, 3 explicit request
 -------disc-------->  --------REL-------->
                       <-------RLC---------
```

1. Set up a call UNI at SPB to SPA with user-to-user information and user-to-user service 2, 3 request.
2. The call should be released with cause #29 or #69, because the service 2 cannot be provided.

Case b)

```
 access              SPA                    SPB
 ----setup(UUInf)--->  -----IAM(UUInf)----> UUS1, 2, 3 explicit request
 <-------disc--------  <-------REL---------
                       --------RLC-------->
```

1. Set up a call UNI at SPA to SPB with user-to-user information and user-to-user service 2, 3 request.
2. The call should be released with cause #29 or #69, because the service 2 cannot be provided.

TSS UUS/UUS2/	TP ISS_V_6_2_15	ISUP'97 reference 1.2.6.13.1; 1.2.6.13.3/Q.737 [33]	Selection expression Local AND (PICS A.9/4 OR PICS A.9/8)	Q.788 [38] reference None

Test purpose

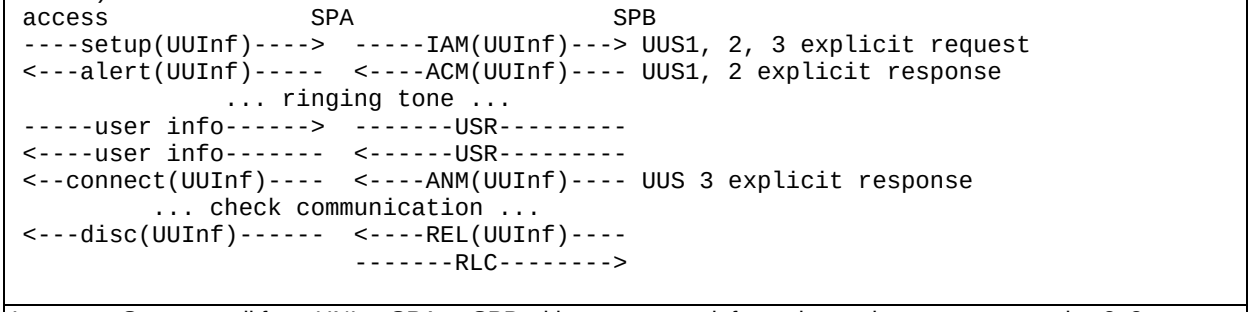
UUS2 interaction with UUS1 (or UUS3) - independent acceptance or rejection of the services

To verify that the IUT can successfully complete a call with an UUS2 explicit non-essential request, having the **user-to-user indicators** parameter set to "service provided" in the **ACM** or **CPG**. At the same time the UUS1 (or UUS3) service can be rejected and the **user-to-user indicators** in the **ACM**, **CPG**, **ANM**, **CON** or **REL** are set to "service 1 (or 3) not provided".

Pre-test conditions

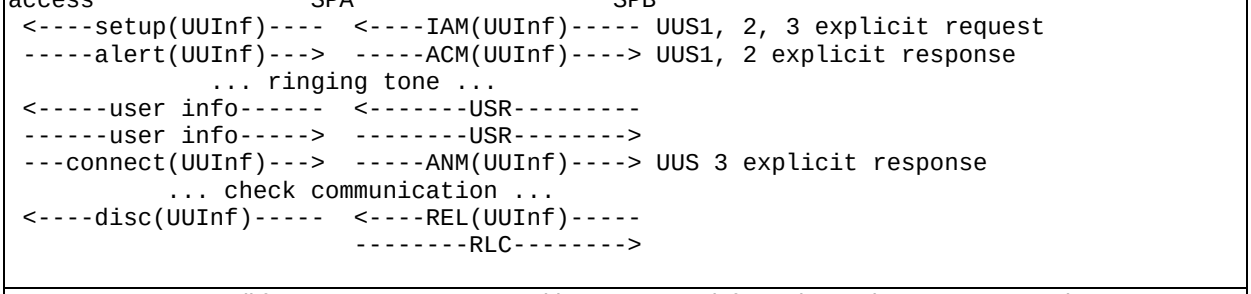
Arrange the data in the IUT so that the user has subscribed to the UUS1 and UUS2 (or UUS3) supplementary services.

Case a)



1. Set up a call from UNI at SPA to SPB with user-to-user information and user-to-user service 2, 3 request.
2. Check that the Service 1, 2, 3 fields in UUInd are set each to "request, not essential".
3. Send/Receive user-to-user information (support of service 2).

Case b)



---connect(UUInf)---> -----ANM(UUInf)----> UUS 3 explicit response

1. Set up a call from UNI at SPB to SPA with user-to-user information and user-to-user service 2, 3 request.
2. The Service 1, 2, 3 fields in UUInd are set each to "request, not essential".
3. Send/Receive user-to-user information (support of Service 2).

NOTE: Repeat the test case by setting the response of service 1 or 3 requests in CPG, ANM, REL or CON.

TSS UUS/UUS2/	TP ISS_V_6_2_16	ISUP'97 reference 1.2.6.13.3; 1.2.6.13.1/Q.737 [33]	Selection expression Local AND PICS A.9/8	Q.788 [38] reference None

Test purpose

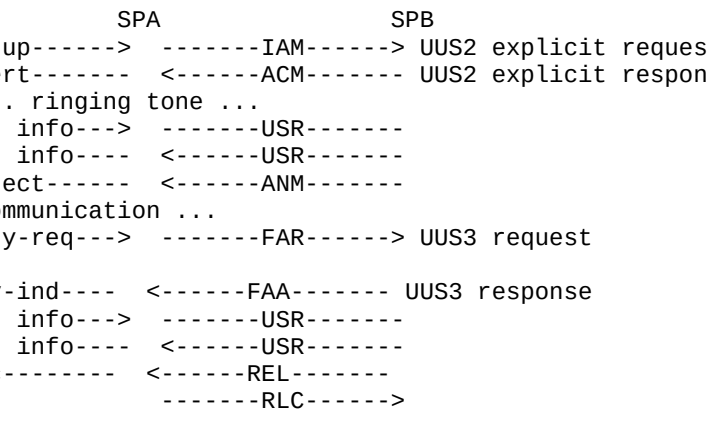
UUS2 interaction with UUS3 requested after call set up

To verify that the IUT can successfully originate/complete a call with UUS2 and UUS3 service requested after call set up. The Service 2 field of the **user-to-user indicators** in the **FAR**, **FAA** or **FRJ** is then set to "no information".

Pre-test conditions

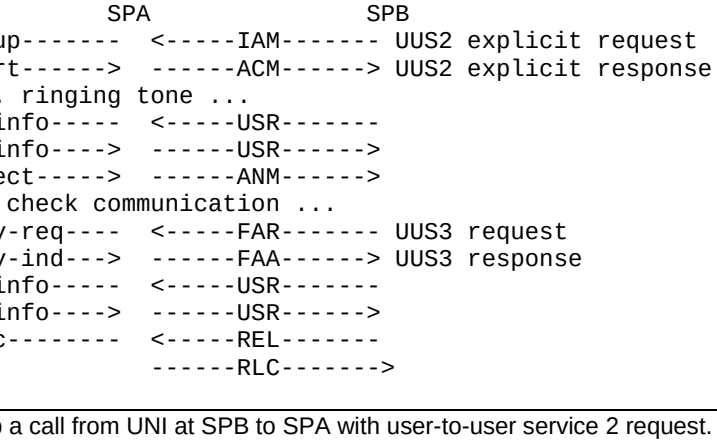
Arrange the data in the IUT so that the user has subscribed to the UUS2 and UUS3 supplementary services.

Case a)



1. Set up a call from UNI at SPA to SPB with user-to-user service 2 request.
2. Check that the Service 2 fields in UUInd is set to "request, not essential".
3. Send/Receive user-to-user information (support of service 2).
4. Check request of service 3 in FAR.
5. Send/Receive user-to-user information (support of service 3)

Case b)



1. Set up a call from UNI at SPB to SPA with user-to-user service 2 request.
2. The Service 2 fields in UUInd is set to "request, not essential".
3. Send/Receive user-to-user information (support of service 2).
4. The service 3 is requested in FAR.
5. Check service 3 is provided in FAA.
6. Send/Receive user-to-user information (support of service 3).

6.2.6.3 User-to-user signalling service 3 (UUS3)

TSS UUS/UUS3/	TP ISS_V_6_3_1	ISUP'97 reference 1.3.2.1/Q.737 [33]	Selection expression OLE AND PICS A.9/1	Q.788 [38] reference None

Test purpose
32 octets user-to-user information
To verify that the IUT can successfully initiate a call having 32 octets of **user-to-user information** in each message.
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS3 supplementary service.

```
access              SPA                  SPB
-------setup------>  -------IAM-------> UUS3 explicit request
<------alert-------  <------ACM--------
           ... ringing tone ...
<-----connect------  <------ANM-------- UUS3 response
          ... check communication ...
------user info--->  -------USR------->
<-----user info----  <------USR--------
<-------disc-------  <------REL--------
                     -------RLC------->
```

1. Set up a call from UNI at SPA to SPB with user-to-user service 3 request.
2. Check that the user-to-user information field in the USR contains 32 octets.

TSS UUS/UUS3/	TP ISS_V_6_3_2	ISUP'97 reference 1.3.2.1/Q.737 [33]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Rejection of UUS3 after call set up, if rejected at call set up
To verify that the IUT can reject an UUS3 request after call set up, if it has been rejected at the call set up.
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS3 supplementary service.

```
access               SPA                  SPB
--------setup------->  -------IAM------> UUS3 explicit request
<-------alert--------  <------ACM-------
              ... ringing tone ...
<------connect-------  <------ANM------- UUS3 response
          ... check communication ...
----facility-req---->  -------FAR------>
<--facility-reject---  <------FRJ-------
          ... check communication ...
<------disc----------  <------REL-------
                       -------RLC------>
```

1. Set up a call from UNI at SPA to SPB with user-to-user service 3 request.

TSS UUS/UUS3/	TP ISS_V_6_3_3	ISUP'97 reference 1.3.5.2.1.1.2; 1.3.5.2.2-5.1/Q.737 [33]	Selection expression OLE OR IntermE	Q.788 [38] reference 2.17.1

Test purpose

UUS3 explicit non-essential - request

To verify that the IUT can successfully originate/transit a call with an UUS3 explicit non-essential request, having the user-to-user indicators in the IAM set to "request, not essential".

Pre-test conditions (in case of OLE)

Arrange the data in the IUT so that the user has subscribed to the UUS3 supplementary service.

Case a)

```
 access              SPA                   SPB
 --------setup-------->  --------IAM------->  UUS3 explicit request
 <-------alert--------  <-------ACM--------
          ... ringing tone ...
 <-------connect------  <-------ANM--------  UUS3 response
        ... check communication ...
 -------user info---->  --------USR------->
 <------user info-----  <-------USR--------
 <-------disc---------  <-------REL--------
                        --------RLC------->
```

1. Set up a call from UNI at SPA to SPB with user-to-user service 3 request.

Case b)

```
 SPC                 SPA                    SPB
 ---------IAM------->  --------IAM-------> UUS3 explicit request
 <--------ACM--------  <-------ACM--------
               ... ringing tone ...
 <--------ANM--------  <-------ANM-------- UUS3 response
             ... check communication ...
 ---------USR------->  --------USR-------->
 <--------USR--------  <-------USR---------
 <--------REL--------  <-------REL---------
 ---------RLC------->  --------RLC-------->
```

1. Set up a call from UNI at SPC to SPB with user-to-user service 3 request.

TSS UUS/UUS3/	TP ISS_V_6_3_4	ISUP'97 reference 1.3.5.2.1.1.2; 1.3.5.2.2-5.1/Q.737 [33]	Selection expression DLE OR IntermE	Q.788 [38] reference 2.17.1

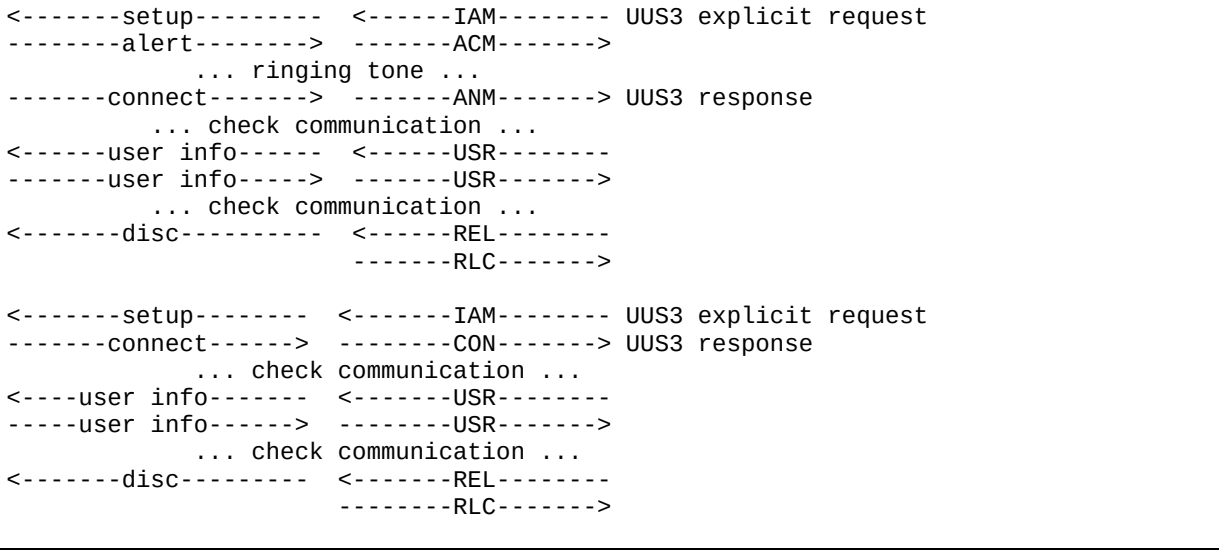
Test purpose

UUS3 explicit non-essential - acceptance

To verify that the IUT can successfully complete a call with an UUS3 explicit non-essential request, having the Service 3 field in the **user-to-user indicators** parameter in the **ANM** or **CON** set to "service provided".

Pre-test conditions (in case of DLE)

Arrange the data in the IUT so that the user has subscribed to the UUS3 supplementary service.



1. Set up a call from UNI at SPB to SPA with user-to-user service 3 request.

TSS UUS/NO_UUS3/	TP ISS_I_6_3_5	ISUP'97 reference 1.3.5.2.5.2.3; 1.3.5.2.2-5.2/Q.737 [33]	Selection expression DLE OR IntermE	Q.788 [38] reference 2.17.2

Test purpose

UUS3 explicit non-essential - implicit rejection (no indication)

To verify that the IUT can successfully complete a call with an UUS3 explicit non-essential request, if no indication is provided in the backward direction.

NOTE: The network or the user cannot support UUS3.

```
Case a)
 access                SPA                SPB
 <--------setup-------  <------IAM------- UUS3 explicit request
 ---------alert------>  -------ACM------>
             ... ringing tone ...
 --------connect----->  -------ANM------> UUS3 response (no indication)
          ... check communication ...
 <--------disc--------  <------REL-------
                        -------RLC------>

 <--------setup-------  <------IAM------- UUS3 explicit request
 --------connect----->  -------CON------> UUS3 response (no indication)
          ... check communication ... ...
 <--------disc--------  <------REL-------
                        -------RLC------>
```

1. Set up a call from UNI at SPB to SPA with user-to-user service 3 request.

```
Case b)
 SPC                  SPA                SPB
 <-------IAM---------  <------IAM-------- UUS3 explicit request
 --------ACM-------->  -------ACM------->
              ... ringing tone ...
 --------ANM-------->  -------ANM-------> UUS3 response (no indication)
          ... check communication ...
 <-------REL---------  <------REL--------
 --------RLC-------->  -------RLC------->

 <-------IAM---------  <------IAM-------- UUS3 explicit request
 --------CON-------->  -------CON-------> UUS3 response (no indication)
         ... check communication ...
 <-------REL---------  <------REL--------
 --------RLC-------->  -------RLC------->
```

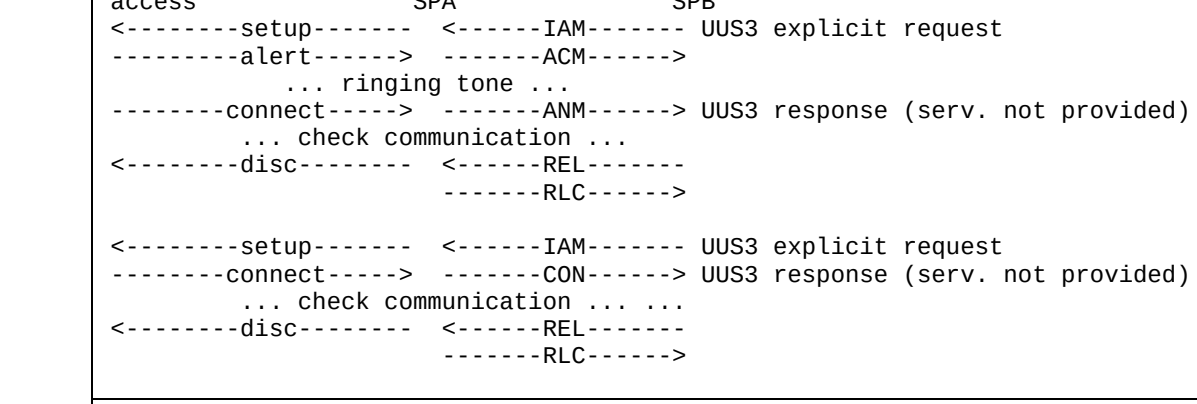
1. Set up a call from UNI at SPB to SPA with user-to-user service 3 request.

TSS UUS/NO_UUS3/	TP ISS_I_6_3_6	ISUP'97 reference 1.3.5.2.5.2.2; 1.3.5.2.2-5.2/Q.737 [33]	Selection expression DLE OR IntermE	Q.788 [38] reference 2.17.3

Test purpose
UUS3 explicit non-essential - explicit rejection (service not provided)
To verify that the UUS3 service can be rejected and the Service 3 field in the **user-to-user indicators** in the **ANM** or **CON** are set to "service 3 not provided".

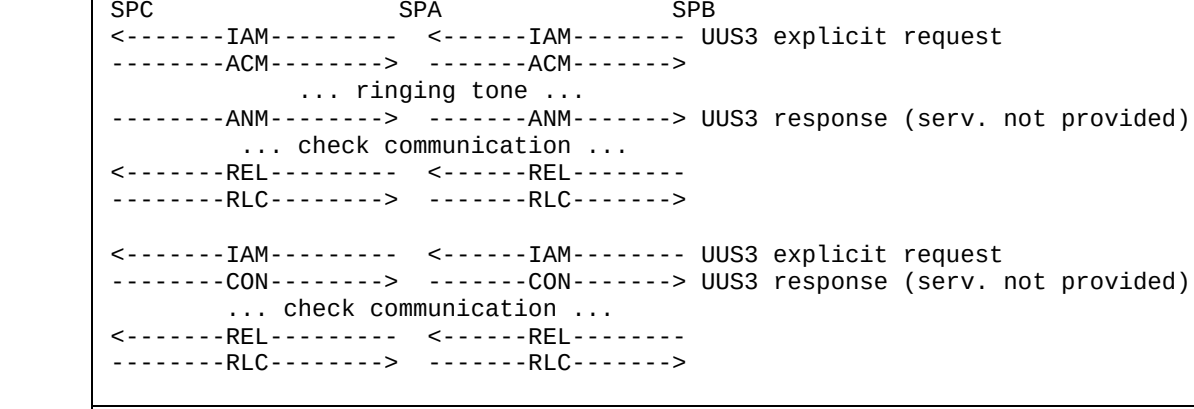
NOTE: The network or the called user cannot support UUS3.

Case a)



1. Set up a call from UNI at SPB to SPA with user-to-user service 3 request.

Case b)

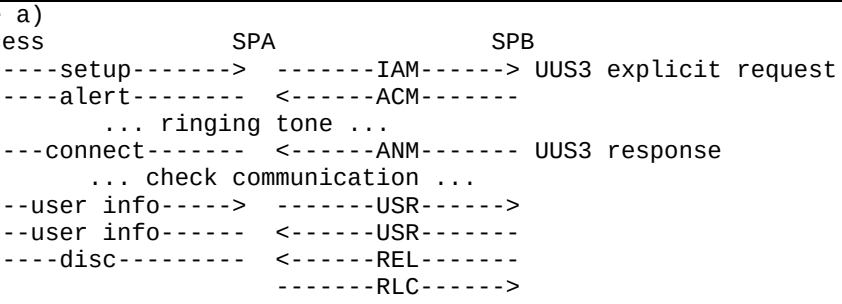


1. Set up a call from UNI at SPB to SPA with user-to-user service 3 request.

TSS UUS/UUS3/	TP ISS_V_6_3_7	ISUP'97 reference 1.3.5.2.1.1.2; 1.3.5.2.2-5.1/Q.737 [33]	Selection expression OLE OR IntermE	Q.788 [38] reference 2.17.1

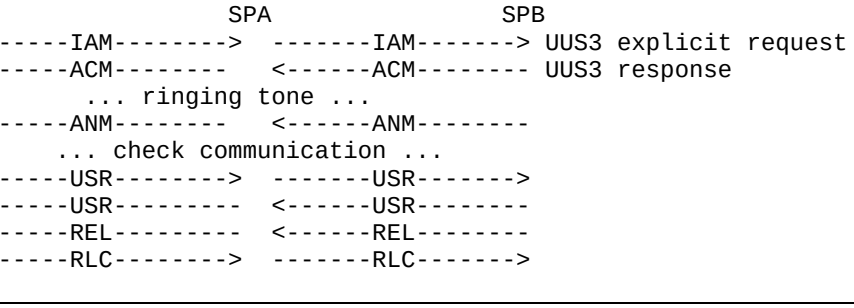
Test purpose
UUS3 explicit essential - request
To verify that the IUT can successfully originate/transit a call with an UUS3 explicit essential request, having in the **IAM** the **user-to-user indicators** set to "request, essential" and the ISDN user part preference indicator in the **forward call indicators** set to "ISUP required all the way".
Pre-test conditions (in case of OLE)
Arrange the data in the IUT so that the user has subscribed to the UUS3 supplementary service.

Case a)



1. Set up a call from UNI at SPA to SPB with user-to-user service 3 request.
2. Send/Receive user-to-user information.

Case b)



1. Set up a call from UNI at SPA to SPB with user-to-user service 3 request.
2. Send/Receive user-to-user information.

TSS UUS/UUS3/	TP ISS_V_6_3_8	ISUP'97 reference 1.3.5.2.1.1.2; 1.3.5.2.2-5.1/Q.737 [33]	Selection expression DLE OR IntermE	Q.788 [38] reference 2.17.1

Test purpose
UUS3 explicit essential - acceptance
To verify that the IUT can successfully complete a call with an UUS3 explicit essential request having in the **ANM** or **CON** the Service 3 field of the **user-to-user indicators** parameter set to "service provided".
Pre-test conditions (in case of DLE)
Arrange the data in the IUT so that the user has subscribed to the UUS3 supplementary service.

```
 access                SPA                SPB
 <-------setup--------  <------IAM------- UUS3 explicit request
 --------alert------->  -------ACM------>
             ... ringing tone ...
 -------connect------>  -------ANM------> UUS3 response
           ... check communication ...
 <-----user info------  <------USR-------
 ------user info----->  -------USR------>
           ... check communication ...
 <-------disc---------  <------REL-------
                        -------RLC------>

 <-------setup--------  <------IAM------- UUS3 explicit request
 -------connect------>  -------CON------> UUS3 response
          ... check communication ...
 <-----user info------  <------USR-------
 ------user info----->  -------USR------>
          ... check communication ...
 <-------disc---------  <------REL-------
                        -------RLC------>
```

1. Set up a call from UNI at SPB to SPA with user-to-user service 3 request.

TSS UUS/NO_UUS3/	TP ISS_I_6_3_9	ISUP'97 reference 1.3.5.2.5.2.2; 1.3.5.2.2-5.2/Q.737 [33]	Selection expression DLE OR IntermE	Q.788 [38] reference 2.17.4

Test purpose
UUS3 explicit essential - explicit rejection
To verify that the service can be rejected with a **REL** having the **Cause value** #29 "facility rejected", #69 "requested facility not implemented", either with diagnostics (**user-to-user indicators** name).

NOTE: The network or the called user cannot support the service.

Case a)

```
 access              SPA                SPB
 <------setup--------  <------IAM------- UUS3 explicit request
 -------disc-------->  -------REL------>
                       <------RLC-------
```

1. Set up a call UNI at SPB to SPA with user-to-user service 3 request.
2. The call should be released with cause #29 or #69.

Case b)

```
 SPC                 SPA                SPB
 <------IAM--------  <------IAM--------- UUS3 explicit request
                      -------CFN-------->
 <------REL--------  -------REL-------->
 -------RLC------->  <------RLC---------
```

1. Set up a call UNI at SPB to SPC with user-to-user service 3 request.
2. The call should be released with cause #29 or #69.

TSS UUS/UUS3/	TP ISS_V_6_3_10	ISUP'97 reference 1.3.5.2.1.1.2; 1.3.5.2.2-5.1/Q.737 [33]	Selection expression OLE OR IntermE	Q.788 [38] reference 2.17.6

Test purpose
UUS3 explicit non-essential - request during the active phase of the call
To verify that the IUT can successfully generate/transit an UUS3 explicit non-essential request, with a **FAR** having the **facility indicator** parameter set to "user-to-user service" and the Service 3 field in the **user-to-user indicators** set to "request, not essential".
Pre-test conditions (in case of OLE)
Arrange the data in the IUT so that the user has subscribed to the UUS3 supplementary service.

```
Case a)
 access             SPA                SPB
 -------setup------>  -------IAM-------->
 <------alert-------  <------ACM--------
          ... ringing tone ...
 <-----connect------  <------ANM--------
       ... check communication ...
 ---facility-req--->  -------FAR-------> UUS3 explicit request
 <-facility-reject--  <------FRJ-------- UUS3 response
        ... check communication ...
<-------disc--------  <------REL--------
                     -------RLC------->
```

1. Service 3 request during the active phase.

```
Case b)
 SPC              SPA               SPB
 -------IAM------>  ------IAM------->
 <------ACM-------  <-----ACM--------
           ... ringing tone ...
 <------ANM-------  <-----ANM--------
        ... check communication ...
 -------FAR------>  ------FAR-------> UUS3 explicit request
 <------FRJ-------  <-----FRJ-------- UUS3 response
        ... check communication ...
 <------REL-------  <-----REL--------
 -------RLC------>  ------RLC------->
```

1. Service 3 request during the active phase.

TSS UUS/UUS3/	TP ISS_V_6_3_11	ISUP'97 reference 1.3.5.2.1.1.2; 1.3.5.2.2-5.1/Q.737 [33]	Selection expression DLE OR IntermE	Q.788 [38] reference 2.17.5

Test purpose
UUS3 explicit non-essential - acceptance during call
To verify that the IUT can successfully reply to an UUS3 explicit non-essential request with a **FAA** having the **facility indicator** parameter set to "user-to-user service" and the Service 3 field in the **user-to-user indicators** parameter set to "service provided".
Pre-test conditions (in case of DLE)
Arrange the data in the IUT so that the user has subscribed to the UUS3 supplementary service.

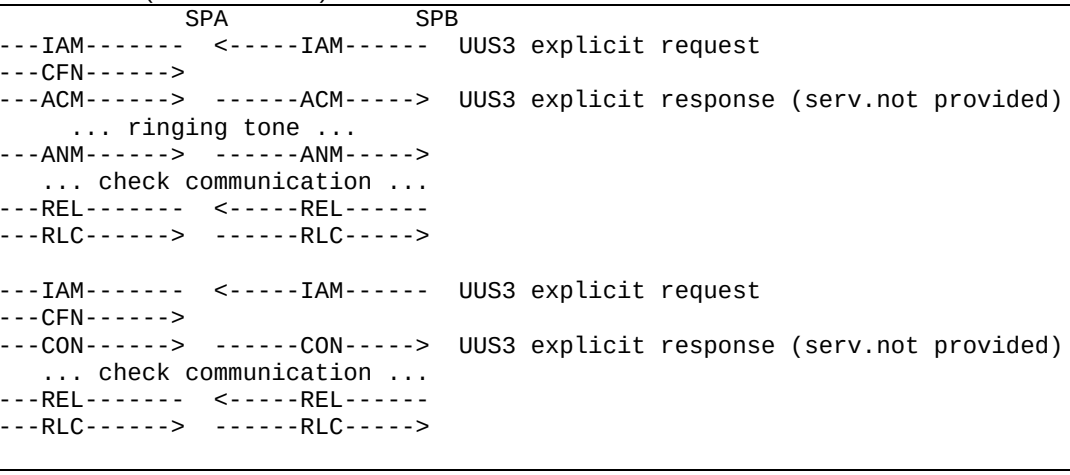
```
 access             SPA               SPB
 <------setup-------  <-----IAM-------
 -------alert------>  ------ACM------>
           ... ringing tone ...
 ------connect----->  ------ANM------>
      ... check communication ...
 <--facility-req----  <-----FAR------- UUS3 request
 ---facility-ind--->  ------FAA------> UUS3 response
 <----user info-----  <-----USR-------
 -----user info---->  ------USR------>
 <------disc--------  <-----REL-------
                      ------RLC------>
```

1. The service 3 is requested in FAR.
2. Check service 3 is provided in FAA.
3. Send/Receive user-to-user information (support of service 3).

TSS UUS/UUS3/	TP ISS_I_6_3_12	ISUP'97 reference table 1-3/Q.737 [33]	Selection expression Gateway AND PICS A.9/5	Q.788 [38] reference 2.17.3

Test purpose
UUS3 explicit non-essential - explicit rejection in the Gateway
To verify that the UUS3 explicit non-essential service can be rejected and the Service 3 field in the **user-to-user indicators** in the **ACM** or **CON** are set to "service 3 not provided".

NOTE: The user-to-user service is rejected because the Gateway received e.g. a **CFN** from the succeeding network (note 2 table 1-3).

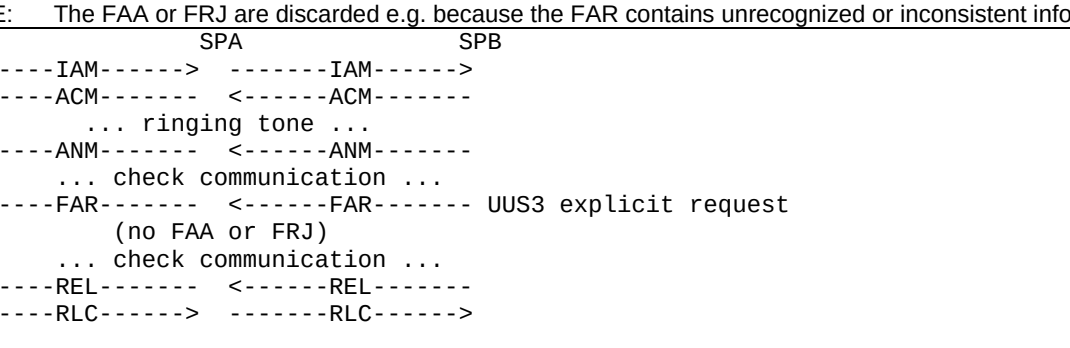


1. Set up a call from UNI at SPB to SPC with user-to-user service 3 request.
2. The Service 3 field in the UUInd is set to "request, not essential".
3. Check the response "Service not provided" in the ACM or CON.

TSS UUS/UUS3/	TP ISS_I_6_3_13	ISUP'97 reference 1.3.5.2.5.2.2/Q.737 [33]	Selection expression IntermE	Q.788 [38] reference None

Test purpose
UUS3 explicit non-essential - implicit rejection during call (no indication - discard FAA or FRJ)
To verify that the IUT can successfully complete a call with an UUS3 request in the **FAR**, if the **FAA** or **FRJ** are discarded.

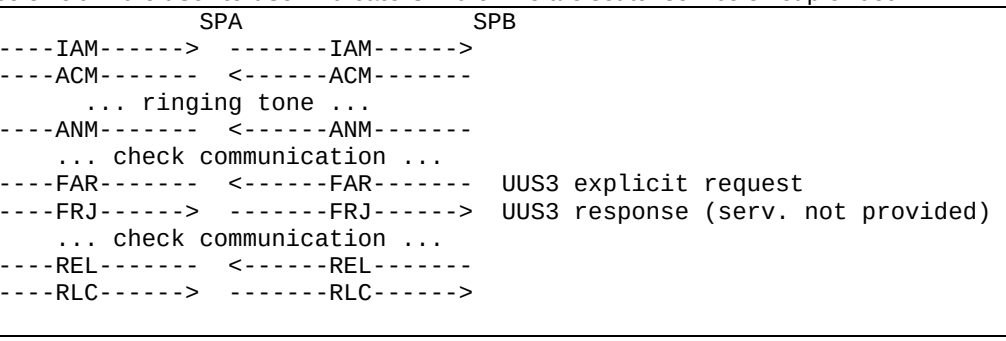
NOTE: The FAA or FRJ are discarded e.g. because the FAR contains unrecognized or inconsistent information.



1. Service 3 request during the active phase.

TSS UUS/UUS3/	TP ISS_I_6_3_14	ISUP'97 reference 1.3.5.2.5.2.2/Q.737 [33]	Selection expression IntermE	Q.788 [38] reference None

Test purpose
UUS3 explicit non-essential - explicit rejection during call (service not provided - in FRJ)
To verify that the UUS3 explicit non-essential service can be rejected during the active phase of the call and the Service 3 field in the **user-to-user indicators** in the **FRJ** are set to "service 3 not provided".



1. Service 3 request during the active phase.

TSS UUS/UUS3/	TP ISS_V_6_3_15	ISUP'97 reference 1.3.6.13.1; 1.3.6.13.2/Q.737 [33]	Selection expression Local AND (PICS A.9/4 OR PICS A.9/6)	Q.788 [38] reference None

Test purpose
UUS3 interaction with UUS1 (or UUS2) - unsuccessful request
To verify that the services can be rejected with a **REL** having the **Cause value** #29 "facility rejected" or #69 "requested facility not implemented", either with diagnostics (**user-to-user indicators** name), if more services are requested one of them essential which cannot be provided.
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS3 and UUS1 or (UUS2) supplementary services.
See ISS_V_6_2_14

TSS UUS/UUS3/	TP ISS_V_6_3_16	ISUP'97 reference 1.3.6.13.1; 1.3.6.13.2/Q.737 [33]	Selection expression Local AND (PICS A.9/4 OR PICS A.9/6)	Q.788 [38] reference None

Test purpose
UUS3 interaction with UUS1 (or UUS2) - Independent acceptance or rejection of the services
To verify that the IUT can successfully complete a call with an UUS3 explicit non-essential request, having the Service 3 field in the **user-to-user indicators** parameter set to "service provided" in **ANM** or **CON**. At the same time the UUS1 (or UUS2) service can be rejected and the **user-to-user indicators** in the **ACM**, **CPG**, **ANM**, **CON** or **REL** are set to "service 1 (or 2) not provided".
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS3 and UUS1 (or UUS2) supplementary services.
See test case ISS_V_6_2_15.

TSS UUS/UUS3/	TP ISS_V_6_3_17	ISUP'97 reference 1.3.6.18/Q.737 [33]	Selection expression OLE	Q.788 [38] reference None

Test purpose
UUS3 interaction with TP - FAR sent while call is suspended
To verify that if the **FAR** is received while a call is suspended, the IUT returns a **FRJ** with the Service 3 field in the **user-to-user indicators** set to "Service 3 not provided".
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to the UUS3 and TP supplementary services.

```
access              SPA               SPB
-------setup------>  ------IAM------>
<------alert------>  <-----ACM-------
            ... ringing tone ...
<-----connect------  <-----ANM-------
         ... check communication ...
<----tp-suspend----  <-----SUS-------
                     <-----FAR-------  UUS3 explicit request
                     ------FRJ------>  UUS3 response (serv. not provided)
         ... check communication ...
<-------disc-------  <-----REL-------
                     ------RLC------>
```

1. Set up a call from UNI at SPA to SPB which has been suspended.

6.2.7 Closed user group (CUG)

TSS CUG/	TP ISS_V_7_1	ISUP'97 reference 1.5.2.1.1 i) a)/Q.735 [30]	Selection expression OLE	Q.788 [38] reference 2.4.4; 2.4.5

Test purpose
CUG without outgoing access in IAM
To verify that the IUT can successfully establish a CUG call by including the **CUG interlock code** together with an indication of "CUG call, outgoing access not allowed" in the **optional forward call indicators** in the **IAM**. The ISUP preference indicator of the **forward call indicators** in the **IAM** should be set to "ISUP required all the way".
Pre-test conditions
Arrange the data in the IUT such that the calling party subscribes to the CUG without outgoing access supplementary service.

```
access              SPA                   SPB
 -------setup------> -----IAM (CUG)---->
(-OA) - with outgoing access not allowed
```

1. Set up a CUG call from the access specifying a CUG interlock code. The CUG call is with outgoing access not allowed.
2. CUG call indicator set to "CUG call, outgoing access not allowed" and IPI set to "ISUP required all the way".

TSS CUG/	TP ISS_V_7_2	ISUP'97 reference 1.5.2.2.1; 1.5.2.3.1; 1.5.2.4.1/Q.735 [30]	Selection expression IntermE	Q.788 [38] reference 2.4.4; 2.4.5

Test purpose
Transfer of information related to CUG
To verify that the IUT can successfully transfer all information related to a CUG call, i.e. **CUG interlock code** together with an indication of "CUG call, outgoing access not allowed" in the **optional forward call indicators** in the **IAM**.

```
SPC                 SPA                   SPB
 -----IAM (CUG)---->  -----IAM (CUG)----> (-OA)
```

1. Initiate a CUG call set up from SPC specifying a CUG interlock code. The CUG call is with outgoing access not allowed.
2. CUG call indicator set to "CUG call, outgoing access not allowed".

TSS CUG/	TP ISS_V_7_3	ISUP'97 reference 1.5.2.3.1; 1.5.2.4.1/Q.735 [30]	Selection expression Gateway AND PICS A.10/3	Q.788 [38] reference None

Test purpose
Conversion of the interlock code
To verify that the IUT can successfully convert a national into an international **CUG interlock code** (or vice versa) and that the indication "CUG call, outgoing access not allowed" in the **optional forward call indicators** in the **IAM** is passed on transparently.

```
SPC                SPA                    SPB
-----IAM (CUG)----> -----IAM (CUG)----> (-OA)
```

1. Initiate a CUG call set up from SPC specifying a CUG interlock code. The CUG call is with outgoing access not allowed.
2. CUG call indicator set to "CUG call, outgoing access not allowed" and international CUGIC for OutIE.
3. CUG call indicator set to "CUG call, outgoing access not allowed" and national CUG interlock code for IncIE.

TSS NO_CUG/	TP ISS_I_7_4	ISUP'97 reference 1.5.2.4.2/Q.735 [30] , table 1-1/Q.735 [30]	Selection expression IncIE AND NOT PICS A.3/7 AND PICS A.8/2	Q.788 [38] reference 2.4.9

Test purpose
CUG call without outgoing access, action at the gateway with network without CUG capability
To verify that the IUT rejects a CUG call if the contents of the CUG call indicator is set to "CUG call, outgoing access not allowed" in **optional forward call indicators** in **IAM** and the succeeding national network does not support CUG. The IUT should respond with a **REL** with cause #29 "Facility rejected" and include the parameter name in the diagnostics field.
Pre-test conditions
A route to a network without CUG capability must be available in the IUT.

```
                    SPA                SPB
                      -------IAM------->
                (-OA) with outgoing access not allowed
                      <------REL--------
                      -------RLC------->
```

1. Initiate a CUG call set up from SPC specifying a CUG interlock code. The CUG call is with outgoing access not allowed.
2. Wait for some event, nothing should happen.
3. After timer expiry get the verdict.

TSS NO_CUG/	TP ISS_I_7_5	ISUP'97 reference 1.5.2.4.2/Q.735 [30] , Table 1-1/Q.735 [30]	Selection expression IncIE AND NOT PICS A.3/7 AND PICS A.8/2	Q.788 [38] reference 2.4.3

Test purpose
CUG call with outgoing access, action at the gateway interworking with network without CUG capability
To verify that the IUT proceeds with normal call setup if the contents of the CUG call indicator is received as "CUG call, outgoing access allowed" in **optional forward call indicators** in **IAM** and the succeeding national network does not support CUG.
Pre-test conditions
A route to a network without CUG capability must be available in the IUT.

```
SPC                SPA                SPB
 -----IAM (CUG)----> --------IAM-------->
(+OA) with outgoing access allowed
```

1. Initiate a CUG call set up from SPC specifying a CUG interlock code. The CUG call is with outgoing access allowed.

TSS CUG/	TP ISS_V_7_6	ISUP'97 reference 1.5.2.5.1; Table 1-2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference 2.4.4

Test purpose
CUG call without outgoing access; class of called user: CUG without IA, no ICB activated
To verify that the IUT can successfully establish a CUG call.
Pre-test conditions
Arrange the data in the IUT such that the called party subscribes to CUG and no incoming calls are barred.

```
access              SPA                  SPB
<------setup------- <----IAM (CUG)-----
                     (-OA,-ICB) no incoming calls barred
```

1. Assist a CUG call set up to the access.
2. Send an IAM with ISUP preference indicator in the FCI set to "ISUP required all the way" and CUG call indicator in the OFCI set to "CUG call, outgoing access not allowed".

TSS CUG/	TP ISS_V_7_7	ISUP'97 reference 1.5.2.5.1; Table 1-2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference 2.4.1

Test purpose
CUG call with outgoing access; class of called user: CUG without IA, no ICB activated
To verify that the IUT can successfully establish a CUG call.
Pre-test conditions
Arrange the data in the IUT such that the called party subscribes to CUG and no incoming calls are barred.

```
access              SPA                  SPB
<------setup------- <----IAM (CUG)-----
                     (+OA,-ICB) no incoming calls barred
```

1. Assist a CUG call set up to the access.
2. Send an IAM with ISUP preference indicator in the FCI set to "ISUP required all the way" and CUG call indicator in the OFCI set to "CUG call, outgoing access allowed".

TSS CUG/	TP ISS_V_7_8	ISUP'97 reference 1.5.2.5.1; Table 1-2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference 2.4.8

Test purpose
CUG call without outgoing access; class of called user: CUG without IA, ICB activated
To verify that the IUT rejects the CUG call with cause #55 "Incoming calls barred within CUG" in the **REL**.
Pre-test conditions
Arrange the data in the IUT such that the called party subscribes to CUG and the incoming calls are barred (ICB).

```
access              SPA                  SPB
                      <----IAM (CUG)-----
                       (-OA,+ICB) incoming calls barred
                      -----REL(#55)----->
                      <-------RLC--------
```

1. No call set up should be observed on the access side.
2. Send an IAM with ISUP preference indicator in the FCI set to "ISUP required all the way" and CUG call indicator in the OFCI set to "CUG call, outgoing access not allowed".
3. REL with cause #55 "Incoming calls barred within CUG". The location RLN - "public network serving the remote user" - can also be checked.

TSS CUG/	TP ISS_V_7_9	ISUP'97 reference 1.5.2.5.1; Table 1-2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference None

Test purpose
CUG call with outgoing access; class of called user: CUG without IA, ICB activated
To verify that the IUT rejects the CUG call with cause #55 "Incoming calls barred within CUG" in the **REL**.
Pre-test conditions
Arrange the data in the IUT such that the called party subscribes to CUG and the incoming calls are barred (ICB).

```
access              SPA                 SPB
                     <----IAM (CUG)-----
                      (+OA,+ICB) incoming calls barred
                     -----REL(#55)----->
                     <-------RLC--------
```

1. No call set up should be observed on the access side.
2. Send an IAM with ISUP preference indicator in the FCI set to "ISUP required all the way" and CUG call indicator in the OFCI set to "CUG call, outgoing access allowed".
3. REL with cause #55 "Incoming calls barred within CUG". The location RLN - "public network serving the remote user" - can also be checked.

TSS CUG/	TP ISS_V_7_10	ISUP'97 reference 1.5.2.5.1; Table 1-2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference None

Test purpose
CUG call without outgoing access; class of called user: CUG with IA and no ICB activated
To verify that the IUT can successfully establish a CUG call.
Pre-test conditions
Arrange the data in the IUT such that the called party subscribes to the CUG with Incoming Access (IA) and no incoming calls are barred.

```
access              SPA                 SPB
<------setup------- <----IAM (CUG)-----
            (-OA,+IA,-ICB) incoming access allowed, no incoming calls barred
```

1. Assist a CUG call set up to the access.
2. Send an IAM with ISUP preference indicator in the FCI set to "ISUP required all the way" and CUG call indicator in the OFCI set to "CUG call, outgoing access not allowed".

TSS CUG/	TP ISS_V_7_11	ISUP'97 reference 1.5.2.5.1; Table 1-2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference None

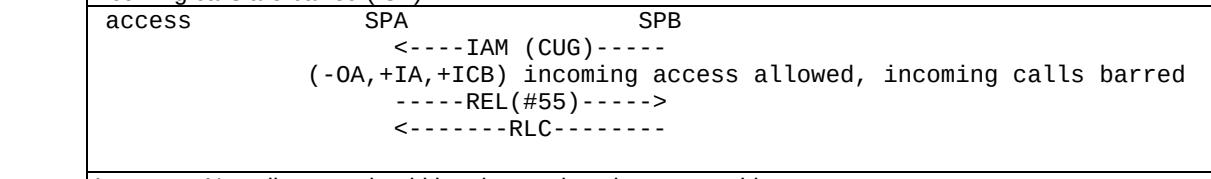
Test purpose
CUG call with outgoing access; class of called user: CUG with IA and no ICB activated
To verify that the IUT can successfully establish a CUG call with outgoing access.
Pre-test conditions
Arrange the data in the IUT such that the called party subscribes to the CUG with Incoming Access (IA) and no incoming calls are barred.

```
access              SPA                 SPB
<------setup------- <----IAM (CUG)-----
             (+OA,+IA,-ICB) incoming access allowed, no incoming calls barred
```

1. Assist a CUG call set up to the access.
2. Send an IAM with ISUP preference indicator in the FCI set to "ISUP required all the way" and CUG call indicator in the OFCI set to "CUG call, outgoing access allowed".

TSS CUG/	TP ISS_V_7_12	ISUP'97 reference 1.5.2.5.1; Table 1-2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference None

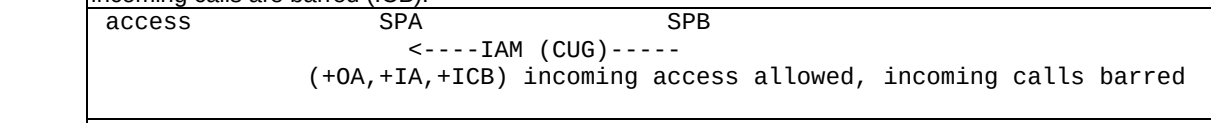
Test purpose
CUG call without outgoing access; class of called user: CUG with IA and ICB activated
To verify that the IUT rejects the CUG call with cause #55 "Incoming calls barred within CUG" in the **REL**.
Pre-test conditions
Arrange the data in the IUT such that the called party subscribes to the CUG with Incoming access (IA) and the incoming calls are barred (ICB).



1. No call set up should be observed on the access side.
2. Send an IAM with ISUP preference indicator in the FCI set to "ISUP required all the way" and CUG call indicator in the OFCI set to "CUG call, outgoing access not allowed".
3. REL with cause #55 "Incoming calls barred within CUG". The location RLN - "public network serving the remote user" - can also be checked.

TSS CUG/	TP ISS_V_7_13	ISUP'97 reference 1.5.2.5.1; Table 1-2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference None

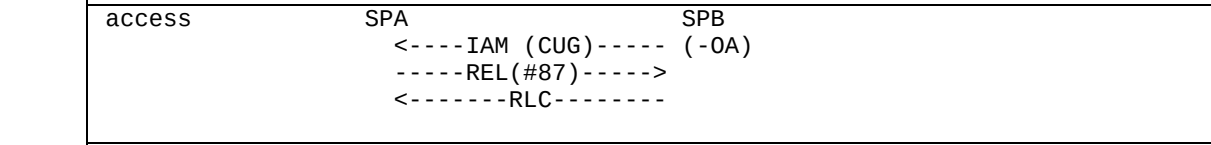
Test purpose
CUG call with outgoing access; class of called user: CUG with IA and ICB activated
To verify that the IUT can successfully establish a non-CUG call.
Pre-test conditions
Arrange the data in the IUT such that the called party subscribes to the CUG with Incoming access (IA) and the incoming calls are barred (ICB).



1. Assist a CUG call set up to the access.
2. Send an IAM with ISUP preference indicator in the FCI set to "ISUP required all the way" and CUG call indicator in the OFCI set to "CUG call, outgoing access allowed".

TSS CUG/	TP ISS_V_7_14	ISUP'97 reference 1.5.2.5.1; Table 1-2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference 2.4.5

Test purpose
CUG call without outgoing access; class of called user: non-CUG
To verify that the IUT rejects the CUG call with cause #87 "User not member of CUG" in the **REL**.
Pre-test conditions
Called user is not member of CUG.



1. No call set up should be observed on the access side.
2. Send an IAM with ISUP preference indicator in the FCI set to "ISUP required all the way" and CUG call indicator in the OFCI set to "CUG call, outgoing access not allowed".
3. REL with cause #87 "User not member of CUG". The location RLN - "public network serving the remote user" - can also be checked.

TSS CUG/	TP ISS_V_7_15	ISUP'97 reference 1.5.2.5.1; Table 1-2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference 2.4.2

Test purpose
CUG call with outgoing access; class of called user: non-CUG
To verify that the IUT can successfully establish a non-CUG call
Pre-test conditions
Called user is not member of CUG.

```
access          SPA              SPB
                  <----IAM (CUG)----- (+0A)
```

1. Assist a CUG call set up to the access.
2. Send an IAM with ISUP preference indicator in the FCI set to "ISUP required all the way" and CUG call indicator in the OFCI set to "CUG call, outgoing access allowed".

TSS CUG/	TP ISS_V_7_16	ISUP'97 reference 1.5.2.5.1; Table 1-2 /Q.735 [30]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Non-CUG call; class of called user: CUG without IA
To verify that the IUT rejects the CUG call with cause # 87 " User not member of CUG " in the **REL**.
Pre-test conditions
Arrange the data in the IUT such that the called party subscribes to CUG.

```
access          SPA              SPB
                  <-------IAM-------
                   (non-CUG,-IA) incoming access not allowed
                  -----REL(#87)---->
                  <-------RLC-------
```

1. No call set up should be observed on the access side.
2. Send an IAM for a non-CUG call with ISUP preference indicator in the FCI set to "ISUP required all the way".
3. REL with cause #87 "User not member of CUG". The location RLN - "public network serving the remote user" - can also be checked.

TSS CUG/	TP ISS_V_7_17	ISUP'97 reference 1.5.2.5.1; Table 1-2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Non-CUG call; class of called user: CUG with IA
To verify that the IUT can successfully establish a non-CUG call.
Pre-test conditions
Arrange the data in the IUT such that the called party subscribes to CUG with Incoming Access (IA).

```
access          SPA              SPB
                  <-------IAM-------
                    (non_CUG,+IA) incoming access allowed
```

1. Assist a Non-CUG call set up to the access.
2. Send an IAM for a non-CUG call with ISUP preference indicator in the FCI set to "ISUP required all the way".

TSS CUG/	TP ISS_V_7_18	ISUP'97 reference 1.5.2.5.1; Table 1-2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference None

Test purpose
CUG call without outgoing access; class of called user: other CUG without IA
To verify that the IUT rejects the CUG call with cause #87 "User not member of CUG" in the **REL**.
Pre-test conditions
Arrange the data in the IUT such that the called party subscribes to another CUG than that of calling user.

```
access              SPA                 SPB
                      <----IAM (CUG)-----
                        (-OA,-IA) other CUG, incoming access not allowed
                      -----REL(#87)----->
                      <-------RLC--------
```

1. No call set up should be observed on the access side.
2. Send an IAM with ISUP preference indicator in the FCI set to "ISUP required all the way" and CUG call indicator in the OFCI set to "CUG call, outgoing access not allowed".
3. REL with cause #87 "User not member of CUG". The location RLN - "public network serving the remote user" - can also be checked.

TSS CUG/	TP ISS_V_7_19	ISUP'97 reference 1.5.2.5.1; Table 1-2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference 2.4.6

Test purpose
CUG call with outgoing access; class of called user: other CUG without IA
To verify that the IUT rejects the CUG call with cause #87 "User not member of CUG" in the **REL**.
Pre-test conditions
Arrange the data in the IUT such that the called party subscribes to another CUG than that of calling user.

```
access              SPA                 SPB
                      <----IAM (CUG)-----
                        (+OA,-IA) other CUG, incoming access not allowed
                      -----REL(#87)----->
                      <-------RLC--------
```

1. No call set up should be observed on the access side.
2. Send an IAM with ISUP preference indicator in the FCI set to "ISUP required all the way" and CUG call indicator in the OFCI set to "CUG call, outgoing access allowed".
3. REL with cause #87 "User not member of CUG". The location RLN - "public network serving the remote user" - can also be checked.

TSS CUG/	TP ISS_V_7_20	ISUP'97 reference 1.5.2.5.1; Table 1-2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference None

Test purpose
CUG call without outgoing access; class of called user: other CUG with IA
To verify that the IUT rejects the CUG call with cause #87 "User not member of CUG" in the **REL**.
Pre-test conditions
Arrange the data in the IUT such that the called party subscribes to another CUG than that of calling user, and that incoming access (IA) is allowed.

```
access              SPA                 SPB
                      <----IAM (CUG)-----
                        (-OA,+IA) other CUG, incoming access allowed
                      -----REL(#87)----->
                      <-------RLC--------
```

1. No call set up should be observed on the access side.
2. Send an IAM with ISUP preference indicator in the FCI set to "ISUP required all the way" and CUG call indicator in the OFCI set to "CUG call, outgoing access not allowed".
3. REL with cause #87 "User not member of CUG". The location RLN - "public network serving the remote user" - can also be checked.

TSS CUG/	TP ISS_V_7_21	ISUP'97 reference 1.5.2.5.1; Table 1-2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference 2.4.7
Test purpose *CUG call with outgoing access; class of called user: other CUG with IA* To verify that the IUT can successfully establish a non-CUG call Pre-test conditions Arrange the data in the IUT such that the called party subscribes to another CUG than that of calling user, and that incoming access (IA) is allowed.				
access SPA SPB <----IAM (CUG)----- (+OA,+IA) other CUG, incoming access allowed				
1. Assist a Non-CUG call set up to the access. 2. Send an IAM with ISUP preference indicator in the FCI set to "ISUP required all the way" and CUG call indicator in the OFCI set to "CUG call, outgoing access allowed".				

TSS CUG/	TP ISS_I_7_22	ISUP'97 reference 1.5.2.5.2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference None
Test purpose *Non-CUG call with CUG interlock code in IAM* To verify that the IUT rejects the call with cause #111 "Protocol error, unspecified" in the **REL**, if a non-CUG call has a **CUG interlock code** in the **IAM**.				
access SPA SPB <---IAM (CUGIC)---- (non-CUG,+IA) incoming access allowed -----REL(#111)----> <-------RLC--------				
1. No call set up should be observed on the access side. 2. Send an IAM for a non-CUG call with ISUP preference indicator in the FCI set to "ISUP required all the way" and a CUG interlock code. There is no OFCI parameter in the IAM. 3. REL with cause #111 "Protocol error, unspecified".				

TSS CUG/	TP ISS_I_7_23	ISUP'97 reference 1.5.2.5.2/Q.735 [30]	Selection expression DLE	Q.788 [38] reference None
Test purpose *CUG call without interlock code in IAM* To verify that the IUT rejects the CUG call with cause #111 "Protocol error, unspecified" in the **REL**, if there is no **CUG interlock code** in the **IAM**.				
access SPA SPB <---IAM (CUGIC)---- (+OA,+IA,-ICB) incoming access allowed, no incoming calls barred -----REL(#111)----> <-------RLC--------				
1. No call set up should be observed on the access side. 2. Send an IAM with ISUP preference indicator in the FCI set to "ISUP required all the way" and CUG call indicator in the OFCI set to "CUG call, outgoing access allowed". There is no CUGIC parameter in the IAM. 3. REL with cause #111 "Protocol error, unspecified".				

6.2.8 Sub-addressing (SUB)

TSS SUB/	TP ISS_V_8_1	ISUP'97 reference 8.5.2.1.1/Q.731 [25]	Selection expression OLE	Q.788 [38] reference 2.2.1
Test purpose *Sending the called sub-address in the access transport parameter* To verify that the IUT can include the called sub-address in the **access transport** parameter in the IAM.				
access SPA SPB -------setup------> --------IAM------->				
1. Set up a call from the access with a called sub-address.				

TSS SUB/	TP ISS_V_8_2	ISUP'97 reference 8.5.2.2.1; 8.5.2.3.1; 8.5.2.4.1/Q.731 [25]	Selection expression IntermE	Q.788 [38] reference 2.2.1
Test purpose *Transit support of access transport parameter* To verify that the contents of the **access transport** parameter is passed on transparently in the IAM.				
SPC SPA SPB --------IAM-------> --------IAM------->				
1. The PTC will initiate a call set up with the expected parameters.				

TSS SUB/	TP ISS_V_8_3	ISUP'97 reference 8.5.2.5.1/Q.731 [25]	Selection expression DLE	Q.788 [38] reference 2.2.1
Test purpose *Receiving the called sub-address in the access transport parameter* To verify that a call may be successfully established if the IAM contains the sub-address in the **access transport** parameter and that the called sub-address is passed on to the user network interface. Pre-test conditions Arrange the data in the IUT such that the called party subscribes to the SUB supplementary service.				
access SPA SPB <------setup------- <-------IAM--------				
1. Set up a call to the access with the ATP parameter containing the called sub-address.				

TSS SUB/	TP ISS_I_8_4	ISUP'97 reference 8.5.2.5.2/Q.731 [25] ; 2.1.1.6/ EN 300 356-1 [5]	Selection expression DLE	Q.788 [38] reference None
Test purpose *Receiving the called sub-address if it is not supported at the destination* To verify that a call may be successfully established if the IAM contains the sub-address in the **access transport** parameter and the destination address does not subscribe to the SUB supplementary service. Pre-test conditions Arrange the data in the IUT such that the called party does not subscribe to the SUB supplementary service.				
access SPA SPB <------setup------- <-------IAM--------				
1. Set up a call to the access with the ATP parameter containing the called sub-address.				

TSS SUB/	TP ISS_V_8_5	ISUP'97 reference 8.7/Q.731 [25]	Selection expression IntermE	Q.788 [38] reference None
Test purpose *Interaction with other networks; no notification is sent back to the OLE* To verify that the IUT can successfully establish a call by discarding the sub-address if the succeeding network does not support the sub-address or the supplied length is not supported.				
NON-ISUP SPA SPB <------setup------- <-------IAM--------				
1. Set up a call to a network which does not support the Sub-addressing supplementary service or which cannot support the sub-address length supplied.				

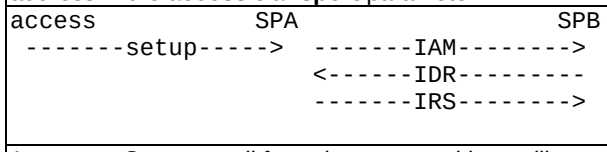
6.2.9 Malicious call identification (MCID)

TSS MCID/	TP ISS_V_9_1	ISUP'97 reference 7.5.2.1.1/ EN 300 356-11 [14]	Selection expression OLE	Q.788 [38] reference 2.5.1
Test purpose *Successful MCID request* To verify that the IUT can successfully reply to an **IDR** having the **MCID request indicator** set to "MCID request" by sending an **IRS** with **MCID response indicator** set to "MCID included" and the **calling party number** included.				
access SPA SPB -------setup------> --------IAM-------> <-------IDR-------- --------IRS------->				
1. Set up a call from the access with or without a calling party number. 2. IAM may or may not contain calling party number. 3. IDR may be requested even if the initial IAM contained calling party number.				

TSS MCID/	TP ISS_V_9_2	ISUP'97 reference 7.5.2.1.1/ EN 300 356-11 [14]	Selection expression OLE	Q.788 [38] reference None
Test purpose *Successful MCID request - after ACM* To verify that the IUT will accept and reply correctly to an MCID request after ACM has been received. The IUT should reply to an **IDR** having the **MCID request indicator** set to "MCID request" by sending an **IRS** with **MCID response indicator** set to "MCID included" and the **calling party number** included.				
NOTE: This situation may occur e.g. if the call has been forwarded before reaching the destination.				
access SPA SPB -------setup------> -------IAM------> <------alert------- <------ACM------- ... ringing tone ... <------IDR------- -------IRS------>				
1. Set up a call from the access. 2. IRS containing the number of calling party number.				

TSS MCID/	TP ISS_V_9_3	ISUP'97 reference 7.5.2.1.1/ EN 300 356-11 [14]	Selection expression OLE AND PICS A.12/1	Q.788 [38] reference 2.5.1

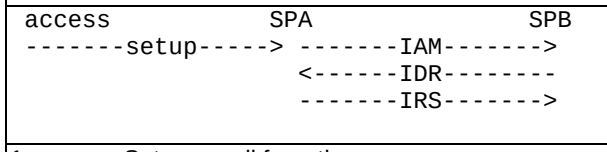
Test purpose
Successful MCID request with calling sub-address
To verify that the IUT can successfully reply to an **IDR** having the **MCID request indicator** set to "MCID request" by sending an **IRS** with **MCID response indicator** set to "MCID included", the **calling party number** and a calling sub-address in the **access transport** parameter.



1. Set up a call from the access with a calling party sub-address.
2. Calling party sub-address in ATP.

TSS NO_MCID/	TP ISS_I_9_4	ISUP'97 reference 7.5.2.1.2/ EN 300 356-11 [14]	Selection expression OLE AND NOT PICS A.3/9	Q.788 [38] reference 2.5.2

Test purpose
MCID request - MCID not supported by the OLE
To verify that the IUT rejects a MCID request by sending a **IRS** with the **MCID response indicator** set to "MCID not included".

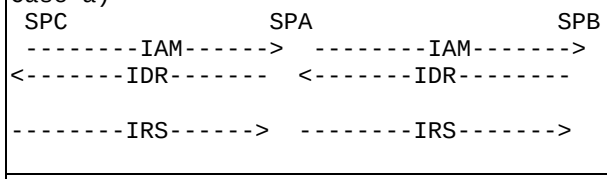


1. Set up a call from the access.

TSS MCID/	TP ISS_V_9_5	ISUP'97 reference 7.5.2.2.1/ EN 300 356-11 [14]	Selection expression Transit	Q.788 [38] reference None

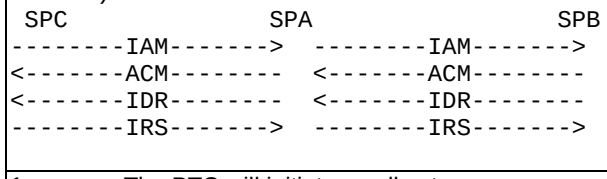
Test purpose
MCID information passed transparently
To verify that a received **IDR** is transferred transparently to the preceding exchange and the subsequent **IRS** is transferred transparently to the succeeding exchange.

Case a)



1. The PTC will initiate a call set up.

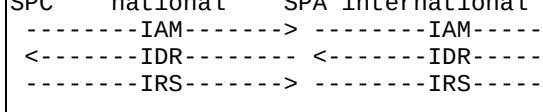
Case b)



1. The PTC will initiate a call set up.

TSS MCID/	TP ISS_V_9_6	ISUP'97 reference 7.5.2.3.1/ EN 300 356-11 [14]	Selection expression OutIE AND NOT PICS A.12/4	Q.788 [38] reference None

Test purpose
MCID information passed and set correctly - outgoing
To verify that a received **IDR** is transferred transparently into the national network (NOT PICS A.4/1), the subsequent **IRS** being transferred into the international network so that the country code in the address signals of the **calling party number** is added and the nature of address indicator is set to "international number".

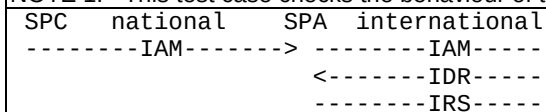


1. The PTC will initiate a call set up with the expected parameters.
2. The IDR request is transferred into the national network.
3. The IRS is received from the national network having the calling party number coded as an "international number".

TSS NO_MCID/	TP ISS_I_9_7	ISUP'97 reference 7.5.2.3.2/ EN 300 356-11 [14]	Selection expression OutIE AND NOT PICS A.3/9 AND PICS A.8/3	Q.788 [38] reference 2.5.2

Test purpose
MCID request - MCID not supported by the calling party"s national network
To verify that the outgoing international exchange rejects a MCID request by sending an **IRS** with the **MCID response indicator** set to "MCID not included".

NOTE 1: This test case checks the behaviour of the IUT if the national network does not support MCID.

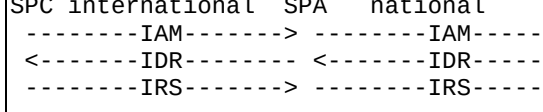


1. PTC provides stimulus for normal call setup (calling party number not included).

NOTE 2: The MCID request is in this case assumed to stop at gateway and not have any impact on the signalling in the national network.

TSS MCID/	TP ISS_V_9_8	ISUP'97 reference 7.5.2.4.1/ EN 300 356-11 [14]	Selection expression IncIE	Q.788 [38] reference None

Test purpose
MCID information passed and set correctly - incoming
To verify that a received **IDR** is transferred transparently into the international network and the subsequent **IRS** is transferred into the national network so that the country code in the address signals of the **calling party number** is removed if it is the network's own country code and the nature of address indicator is set in this case to "national (significant) number".



1. The PTC will initiate a call set up with the expected parameters.
2. The country code is expected to be stripped off and the number format converted to national (significant) number.

TSS MCID/	TP ISS_I_9_9	ISUP'97 reference 7.5.2.4.2/ EN 300 356-11 [14]	Selection expression IncIE AND PICS A.12/5	Q.788 [38] reference None

Test purpose
MCID request - MCID not supported by the calling party's national network - adding information
To verify that the international incoming gateway can modify the **MCID response indicator** set to "MCID not included" into "MCID included" and can include the available information in the **calling party number**.

NOTE: The known part of the **calling party number** is sent with the address incomplete indicator set to "incomplete".

```
SPC international  SPA   national      SPB
 --------IAM-------> --------IAM------->
 <-------IDR-------- <-------IDR--------
 --------IRS-------> --------IRS------->
```

1. The PTC will initiate a call set up with the expected parameters.

TSS MCID/	TP ISS_V_9_10	ISUP'97 reference 7.5.2.5.1 a)/ EN 300 356-11 [14]	Selection expression DLE	Q.788 [38] reference 2.5.1

Test purpose
DLE records call details
To verify that the DLE can successfully record the **calling party number** and optionally the calling sub-address if received in the **IAM** or in the **IRS**.
Pre-test conditions
Arrange the data in the IUT so that the called user has subscribed to MCID service.

```
Case a)
 access             SPA                  SPB
 <------setup------  <-------IAM--------
```

1. Assist setup to the access.
2. CgPN & sub-address in ATP.
3. MCID recordings should be kept while in active phase of call.

```
Case b)
 access             SPA                  SPB
 <------setup------  <-------IAM--------
                     --------IDR------->
                     <-------IRS--------
```

1. Assist setup to the access.
2. No number information in IAM.
3. Number information in IRS (CgPN and Sub in ATP).
4. MCID recordings should be kept while in active phase of call.

TSS MCID/	TP ISS_V_9_11	ISUP'97 reference 7.5.2.5.1 b)/ EN 300 356-11 [14]	Selection expression DLE	Q.788 [38] reference 2.5.1

Test purpose
DLE requests call details
To verify that the DLE can successfully request the **calling party number** and optionally the calling sub-address by sending an **IDR**, if there is no calling party number included in the **IAM**.
Pre-test conditions
Arrange the data in the IUT so that the called user has subscribed to MCID service.

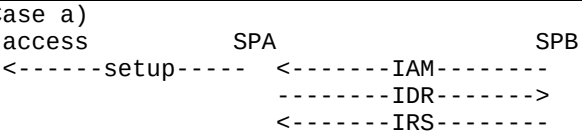
```
 access            SPA                  SPB
 <------setup-----  <-------IAM--------
                    --------IDR------->
                    <-------IRS--------
```

1. Set up to the access containing no number information.
2. Number information is provided.

TSS MCID/	TP ISS_I_9_12	ISUP'97 reference 7.5.2.5.2/ EN 300 356-11 [14]	Selection expression DLE	Q.788 [38] reference 2.5.2

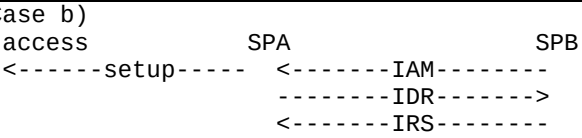
Test purpose
No MCID information after MCID request
To verify that the call setup is continued (user is alerted) if an **IRS** is received without the expected MCID information within timer T39 expiry, after having sent the **IDR** with **MCID request indicator** set to "MCID requested".
Pre-test conditions
Arrange the data in the IUT so that the user has subscribed to MCID service.

Case a)



1. Set up to the access containing no number information.
2. Number information not provided (MCID response indicators = 0, no CgPN given).

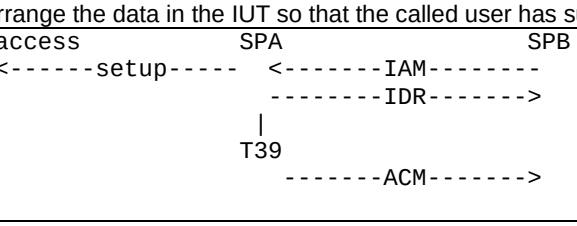
Case b)



1. Set up to the access containing no number information.
2. Number information not provided (MCID response indicators = 1, No CgPN given).

TSS MCID/	TP ISS_I_9_13	ISUP'97 reference 7.5.2.5.2/ EN 300 356-11 [14]	Selection expression DLE	Q.788 [38] reference 2.5.3

Test purpose
MCID timer (T39) expiry
To verify that call setup is continued (user is alerted) if no **IRS** is received within timer T39 expiry, after having sent the **IDR** with **MCID request indicator** set to "MCID requested".
Pre-test conditions
Arrange the data in the IUT so that the called user has subscribed to MCID service.



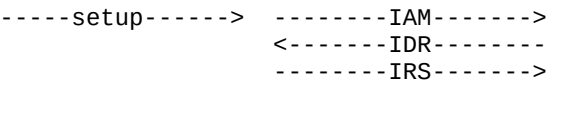
1. Set up to the access containing no number information.

TSS MCID/	TP ISS_V_9_14	ISUP'97 reference 7.7/ EN 300 356-11 [14]	Selection expression OLE AND PICS A.2/4	Q.788 [38] reference 2.5.1

Test purpose
Successful MCID request with additional calling party number
To verify that the OLE can successfully reply to an **IDR** having the **MCID request indicator** set to "MCID request" by sending an **IRS** with **MCID response indicator** set to "MCID included", the **calling party number** and an additional calling party number in the **generic number** parameter.

NOTE: This implies that a special arrangement exists with the calling user.

Pre-test conditions
Arrange the data in the IUT so that the additional calling party number information is available



1. Set up a call from the access.
2. CgPN & addCgPN in GenNb.

TSS MCID/	TP ISS_V_9_15	ISUP'97 reference 7.6.9/ EN 300 356-11 [14]	Selection expression DLE	Q.788 [38] reference None
Test purpose *MCID interaction with DDI* To verify that the **calling party number**, the **called party number** with DDI are registered if provided. Pre-test conditions Arrange the data in the IUT so that the called user has subscribed to the MCID and DDI services				
Case a) access SPA SPB <------setup------- <-------IAM--------				
1. Assist setup to the access. 2. Check the MCID recordings for the called party (with DDI).				
Case b) access SPA SPB <------setup----- <-------IAM-------- --------IDR------->* <-------IRS--------				
1. Assist setup to the access. 2. No number information in IAM. 3. Number information in IRS (with DDI). 4. Check the MCID recordings for the calling party.				

TSS MCID/	TP ISS_V_9_16	ISUP'97 reference 7.6.10/ EN 300 356-11 [14]	Selection expression DLE AND PICS A.12/3	Q.788 [38] reference None
Test purpose *MCID interaction with diversion services* To verify that besides the **calling party number**, the **original called number** and the **redirecting number** are registered if provided.				
NOTE: A call diversion service has been activated for this call.				
Pre-test conditions Arrange the data in the IUT so that the user has subscribed to MCID				
access SPA SPB <------setup------- <-------IAM--------				
1. Assist setup to the access. 2. MCID recordings should be kept while in active phase of call.				

6.2.10 Conference call, add-on (CONF)

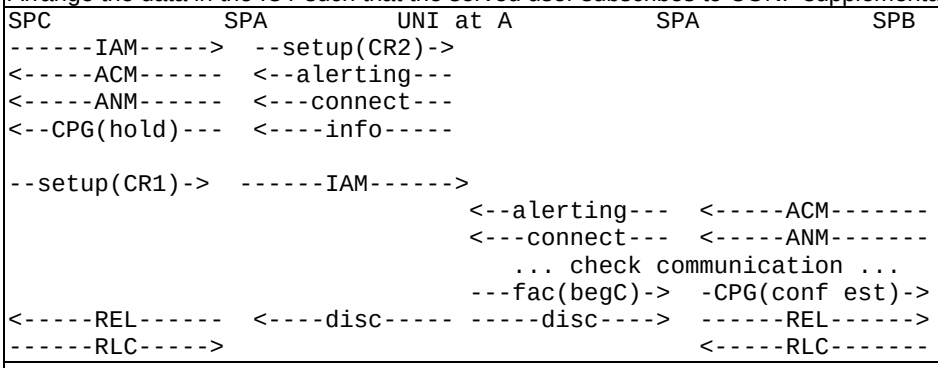
TSS CONF/	TP ISS_V_10_1	ISUP'97 reference 1.5.2.1.1.1/Q.734 [29]	Selection expression Local AND BCall PICS A.13/13	Q.788 [38] reference None
Test purpose *Requirement related to echo control* To verify that the IUT is able to initiate echo control procedures for the necessary legs when a new call is added to the conference.				
NOTE: The used PICS is defined for the basic call (BCall).				
Pre-test conditions Arrange the data in the IUT such that the served user subscribes to CONF supplementary service. For further study.				

TSS CONF/	TP ISS_V_10_2	ISUP'97 reference 1.5.2.1.1.2/Q.734 [29]	Selection expression Local AND PICS A.13/1	Q.788 [38] reference 2.13.1

Test purpose
Establishing a conference from an active call
To verify that the IUT can successfully begin the conference from an active call and notify the implied parties correctly.

NOTE: The **generic notification indicator** set to "conference established" should be sent by the IUT in the **CPG.** The event indicator should be set to "progress".

Pre-test conditions
Arrange the data in the IUT such that the served user subscribes to CONF supplementary service.



1. Assist a call set up to UNI at SPB.
2. Begin the conference and check that notification "conference established" is received in the CPG.
3. Release the call at the end terminal and check that all network resources are released.

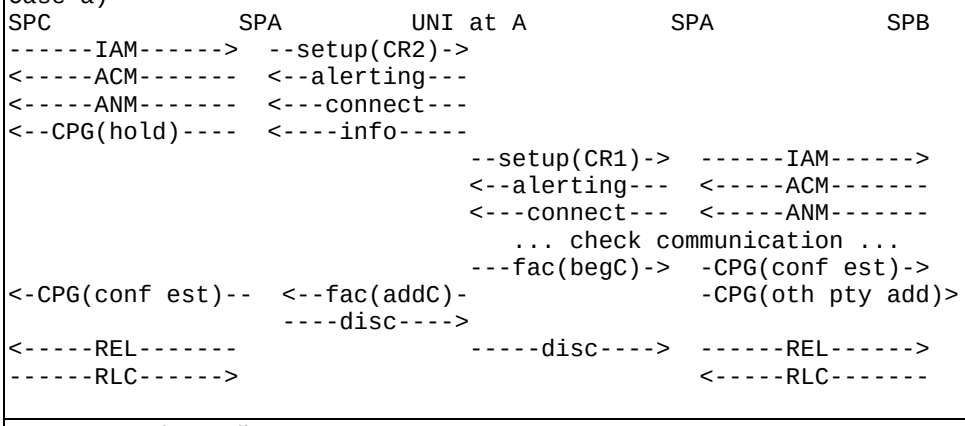
TSS CONF/	TP ISS_V_10_3	ISUP'97 reference 1.5.2.1.1.2/Q.734 [29]	Selection expression Local AND PICS A.13/1	Q.788 [38] reference 2.13.1

Test purpose
Adding calls (conferees) to an established conference
To verify that the IUT is able to add a conferee to a conference and notify the implied parties correctly.

NOTE: The generic notification indicator set to "conference established" should be sent by the IUT to the new affected conferee and the generic notification indicator set to "other party added" to the non-affected conferees. The event indicator in the CPG should be set to "progress".

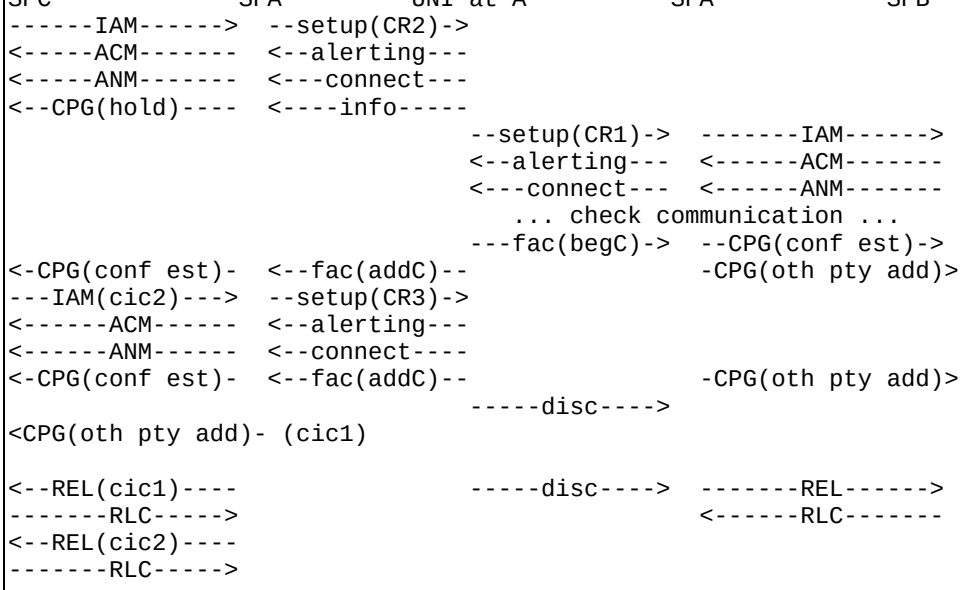
Pre-test conditions
Arrange the data in the IUT such that the served user subscribes to CONF supplementary service.

Case a)



1. Assist a call set up to UNI at SPB.
2. Establish a conference from SPA to SPB.
3. Add a new conferee to the established conference and notify subscriber at SPB by sending him/her "other_party_added" in the CPG.
4. The conference is released by call clearing by the served user at SPA.

Case b)



1. Assist a call set up to UNI at SPB.
2. Establish a conference from SPA to SPB.
3. Add two new conferees to the established conference and notify subscriber at SPB by sending him/her "other party added" in the CPG.
4. The conference is released by call clearing by the served user at SPA.

TSS CONF/	TP ISS_V_10_4	ISUP'97 reference 1.5.2.1.1.2/Q.734 [29]	Selection expression Local AND PICS A.13/2	Q.788 [38] reference None

Test purpose

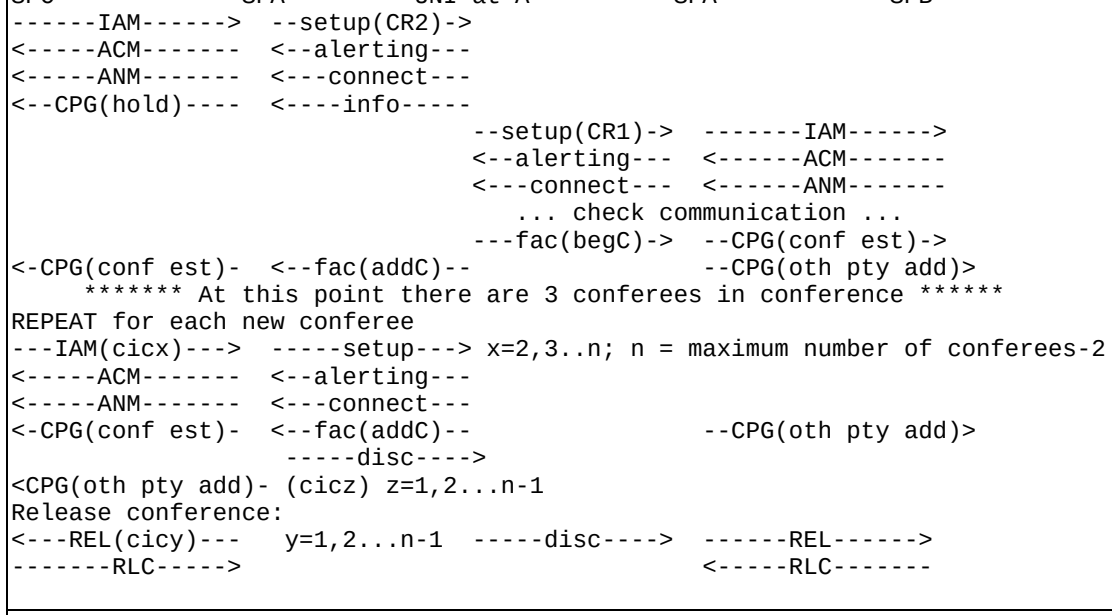
Joining the maximum number of conferees in a conference

To verify that the IUT is able to join the maximum allowed number of conferees to a conference and notify the implied parties correctly.

NOTE: The **generic notification indicator** set to "conference established" should be sent by the IUT to the new affected conferee and the **generic notification indicator** set to "other party added" to the non-affected conferees. The event indicator in the **CPG** should be set to "progress".

Pre-test conditions

Arrange the data in the IUT such that the served user subscribes to CONF supplementary service.



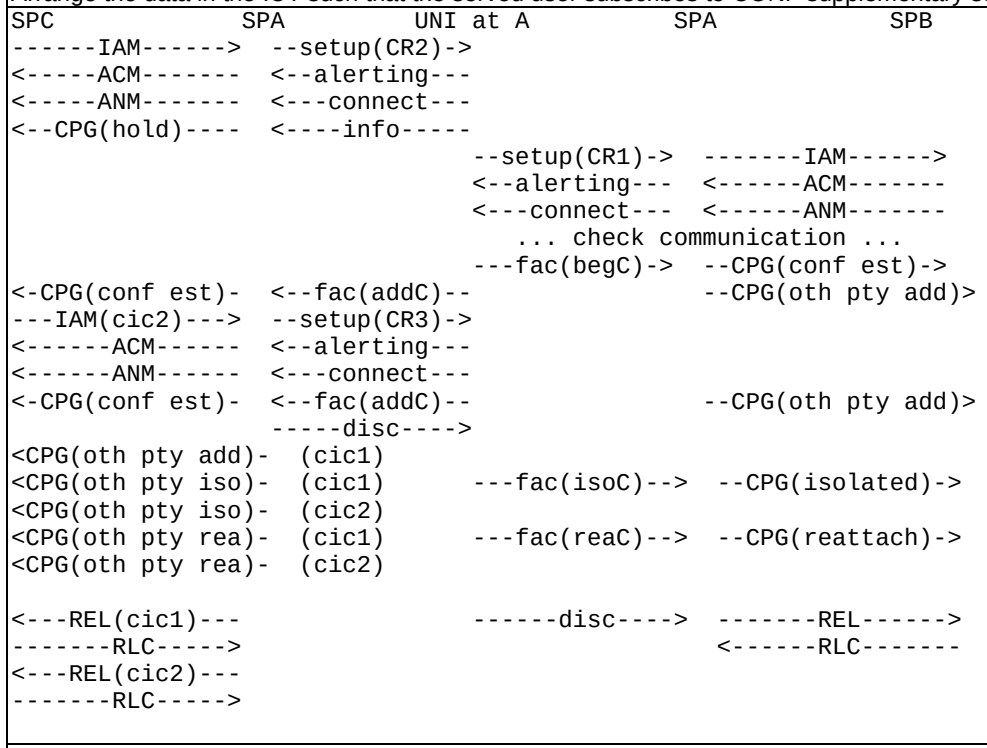
1. Assist a call set up to UNI at SPB.
2. Establish a conference from SPA to SPB.
3. Add two new conferees to the established conference and notify subscriber at SPB by sending him/her "other party added" in the CPG.
4. The conference is released by call clearing by the served user at SPA.

TSS CONF/	TP ISS_V_10_5	ISUP'97 reference 1.5.2.1.1.3/Q.734 [29]	Selection expression Local AND PICS A.13/1	Q.788 [38] reference 2.13.2

Test purpose
Isolation of party
To verify that the IUT can successfully isolate a conferee from the conference and notify the implied parties correctly.

NOTE: The **generic notification indicator** set to "isolated" within **call progress** should be sent by the IUT to the affected conferee and the **generic notification indicator** set to "other party isolated" should be sent to the non-affected conferees. The event indicator in the **CPG** should be set to "progress". The isolated conferee should not be able to communicate with the rest of the conference.

Pre-test conditions
Arrange the data in the IUT such that the served user subscribes to CONF supplementary service.



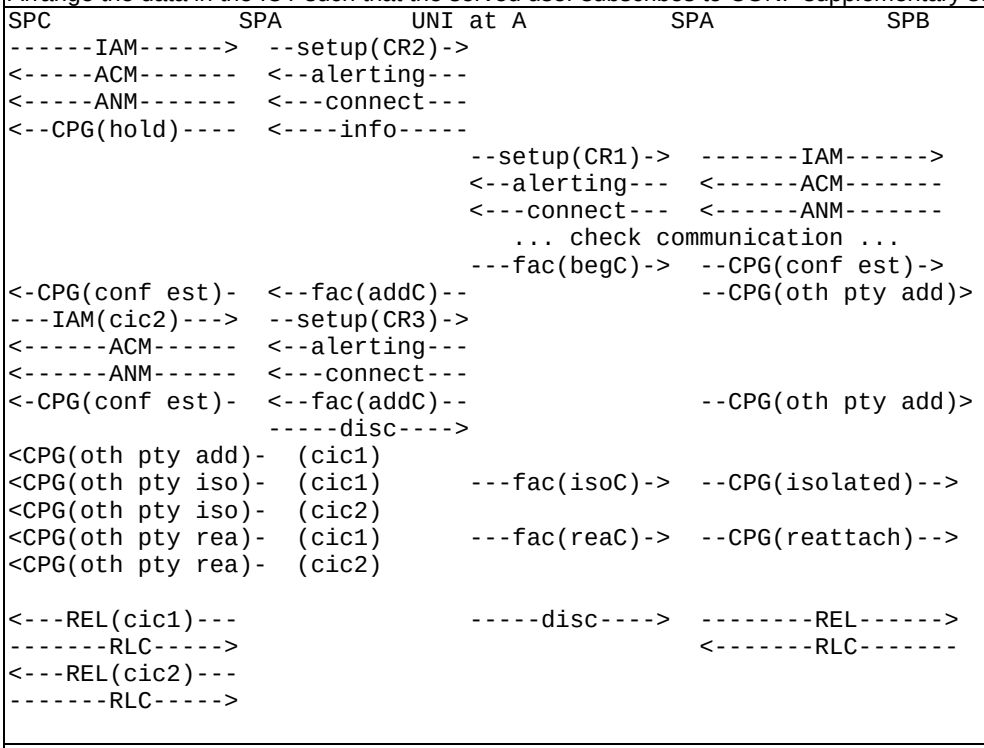
1. Assist a call set up to UNI at SPB.
2. Establish a conference from SPA to SPB.
3. Add two new conferees to the established conference and notify subscriber at SPB by sending him/her "other party added" in the CPG.
4. Isolate a conferee and check that the notification "isolated" is received in the CPG.
5. Reattach the conferee.
6. The conference is released by call clearing by the served user at SPA.

TSS CONF/	TP ISS_V_10_6	ISUP'97 reference 1.5.2.1.1.4/Q.734 [29]	Selection expression Local AND PICS A.13/1	Q.788 [38] reference 2.13.2

Test purpose
Reattachment of party
To verify that the IUT can successfully reattach the isolated conferee to the conference and notify the implied parties correctly.

NOTE: The **generic notification indicator** set to "reattached" should be sent by the IUT to the affected conferee and the **generic notification indicator** set to "other party reattached" should be sent to non-affected conferees. The event indicator in the **CPG** should be set to "progress".

Pre-test conditions
Arrange the data in the IUT such that the served user subscribes to CONF supplementary service.



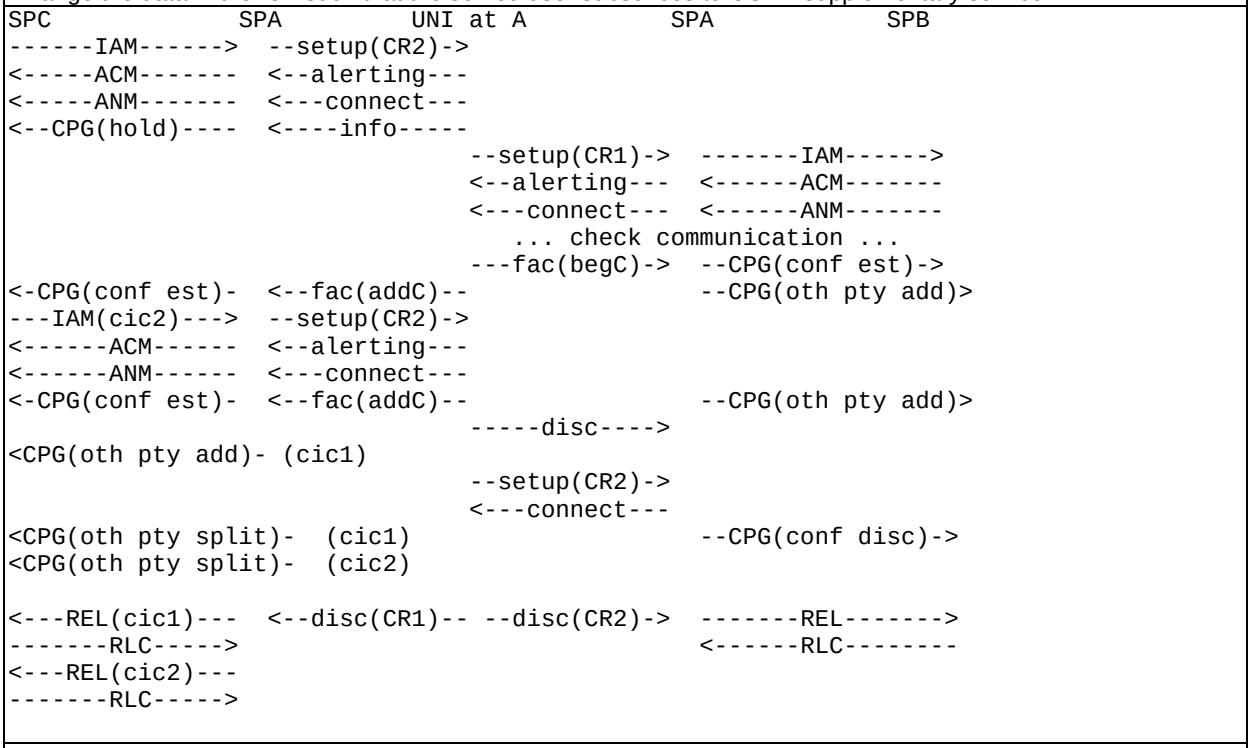
1. Assist a call set up to UNI at SPB.
2. Establish a conference from SPA to SPB.
3. Add two new conferees to the established conference and notify subscriber at SPB by sending him/her "other party added" in the CPG.
4. Isolate a conferee and check that the notification "isolated" is received in the CPG.
5. Reattach the conferee.
6. The conference is released by call clearing by the served user at SPA.

TSS CONF/	TP ISS_V_10_7	ISUP'97 reference 1.5.2.1.1.5/Q.734 [29]	Selection expression Local AND PICS A.13/1	Q.788 [38] reference 2.13.2

Test purpose
Splitting of a party
To verify that the IUT can create a private communication between the served user and one of the conferees and notify the implied parties correctly.

NOTE 1: The generic notification indicator set to "conference disconnected" should be sent by the IUT to the affected conferee and the generic notification indicator set to "other party split" should be sent to the non-affected conferees. The event indicator in the CPG should be set to "progress". The non-affected conferees should not be able to participate in the communication of the private communication.
NOTE 2: See also figure 1-5/ITU-T Recommendation Q.734 [29] .

Pre-test conditions
Arrange the data in the IUT such that the served user subscribes to CONF supplementary service.



1. Assist a call set up to UNI at SPB.
2. Establish a conference from SPA to SPB.
3. Add two new conferees to the established conference and notify subscriber at SPB by sending him/her "other party added" in the CPG.
4. Split the conferee at SPB and check that the notification "conference disconnected" is received in the CPG.
5. The private communication between subscriber at SPA and subscriber at SPB is checked.
6. The conference is released by call clearing by the served user at SPA (CR1) and the private communication by normal call clearing (CR2).

TSS CONF/	TP ISS_V_10_8	ISUP'97 reference 1.5.2.1.1.6/Q.734 [29]	Selection expression Local AND PICS A.13/1	Q.788 [38] reference 2.13.3

Test purpose

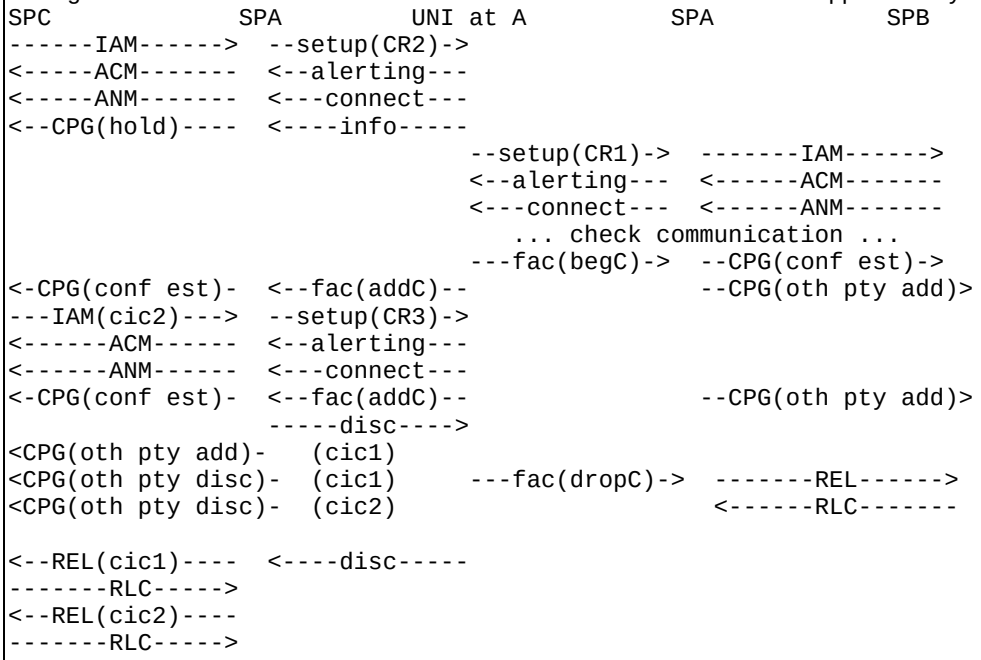
Disconnection of conferee

To verify that IUT can successfully disconnect a conferee from the conference, if requested by the served user, and notify the implied parties correctly.

NOTE: The IUT should release the leg towards the conferee according to normal call release procedures, i.e. send a **REL** to a conferee connected to the conference. The **generic notification indicator** set to "other party disconnected" should be sent to the non-affected conferees. The event indicator in the **CPG** should be set to "progress".

Pre-test conditions

Arrange the data in the IUT such that the served user subscribes to CONF supplementary service.



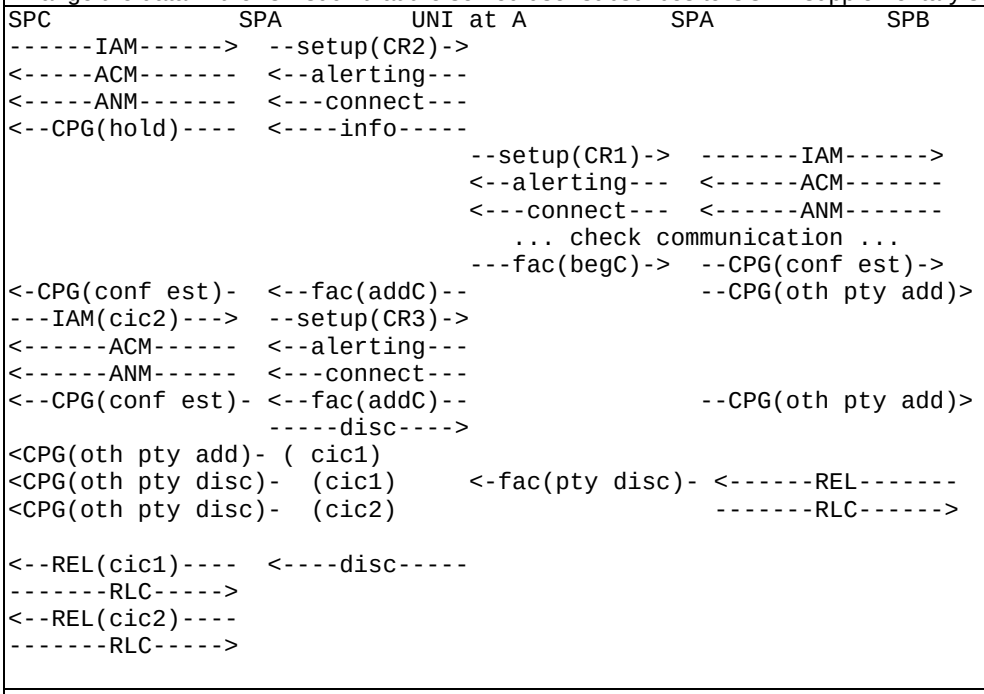
1. Assist a call set up to UNI at SPB.
2. Establish a conference from SPA to SPB.
3. Add two new conferees to the established conference and notify subscriber at SPB by sending him/her "other party added" in the CPG.
4. Release the dropped party at SPB.
5. The conference is released by call clearing by the served user at SPA.

TSS CONF/	TP ISS_V_10_9	ISUP'97 reference 1.5.2.1.1.7/Q.734 [29]	Selection expression Local AND PICS A.13/1	Q.788 [38] reference 2.13.3

Test purpose
Disconnection by a conferee
To verify that IUT can successfully disconnect a conferee from the conference, if requested by the conferee, and notify the implied parties correctly.

NOTE: The IUT should release the leg towards the conferee according to normal call release procedures, i.e. send a **RLC** in response to the **REL** to a conferee connected to the conference through ISUP. The **generic notification indicator** set to "other party disconnected" should be sent to the non-affected conferees. The event indicator in the **CPG** should be set to "progress".

Pre-test conditions
Arrange the data in the IUT such that the served user subscribes to CONF supplementary service.



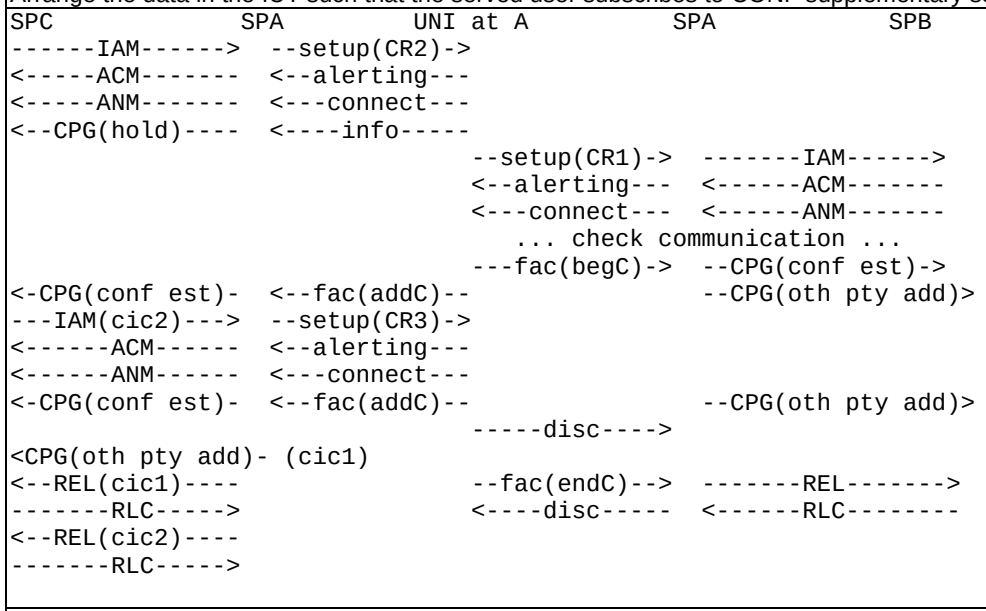
1. Assist a call set up to UNI at SPB.
2. Establish a conference from SPA to SPB.
3. Add two new conferees to the established conference and notify subscriber at SPB by sending him/her "other party added" in the CPG.
4. Release request by the conferee at SPB.
5. The conference is released by call clearing by the served user at SPA.

TSS CONF/	TP ISS_V_10_10	ISUP'97 reference 1.5.2.1.1.8/Q.734 [29]	Selection expression Local AND PICS A.13/1	Q.788 [38] reference 2.13.2

Test purpose
Termination of conference
To verify that IUT can successfully disconnect all conferees from the conference, if requested by the served user, and initiate the normal call release procedure towards each conferee.

NOTE: The IUT should send **REL** to all conferees connected to the conference.

Pre-test conditions
Arrange the data in the IUT such that the served user subscribes to CONF supplementary service.



1. Assist a call set up to UNI at SPB.
2. Establish a conference from SPA to SPB.
3. Add two new conferees to the established conference and notify subscriber at SPB by sending him/her "other party added" in the CPG.
4. Release the dropped party at SPB.
5. The conference is released by call clearing by the served user at SPA.

TSS CONF/	TP ISS_I_10_11	ISUP'97 reference 1.5.2.1.2/Q.734 [29]	Selection expression Local AND PICS A.13/1	Q.788 [38] reference None

Test purpose

Adding of conferees fails (unsuccessful)

To verify that if the procedure of adding conferees fails the concerned call remains in the previous state and notifications never be sent to the affected nor to the non-affected remote parties.

NOTE: The procedure of adding fails, e.g. because the maximum conference participants is exceeded.

Pre-test conditions

Arrange the data in the IUT such that the served user has subscribed to CONF supplementary service.

```
SPC              SPA          UNI at A           SPA             SPB
------IAM------>  --setup(CR2)->
<-----ACM-------  <--alerting---
<-----ANM-------  <---connect---
<--CPG(hold)----  <----info-----
                                --setup(CR1)->  -------IAM------>
                                <--alerting---  <------ACM-------
                                <---connect---  <------ANM-------
                                   ... check communication ...
                                ---fac(begC)->  --CPG(conf est)->
<-CPG(conf est)-  <--fac(addC)--                --CPG(oth pty add)>
--------At this point there are 3 conferees in conference.-------
REPEAT for each new conferee:
---IAM(cicx)--->  ----setup----> x=2,3..n; n = maximum number of conferees-2
<------ACM------  <--alerting---
<------ANM------  <---connect---
<--CPG(conf est)- <--fac(addC)--                --CPG(oth pty add)>
                  -----disc---->
<CPG(oth pty add)- (cicz) z=1,2...n-1
Try to add another conferee (maximum number of conferees exceeded):
---IAM(cicx)--->  -----setup---> x=n+1
<------ACM------  <--alerting---
<------ANM------  <--connect----
                  <--fac(addC)--
-------REL------> -----disc---->
<------RLC-------
Release conference:
<---REL(cicy)----   y=1,2...n-1  -----disc--->  ------REL------>
-------RLC------>                               <-----RLC-------
```

1. Assist a call set up to UNI at SPB.
2. Establish a conference from SPA to SPB.
3. Add two new conferees to the established conference and notify subscriber at SPB by sending him/her "other party added" in the CPG.
4. The conference is released by call clearing by the served user at SPA.

TSS CONF/	TP ISS_I_10_12	ISUP'97 reference 1.5.2.1.2/Q.734 [29]	Selection expression Local AND PICS A.13/1	Q.788 [38] reference None

Test purpose

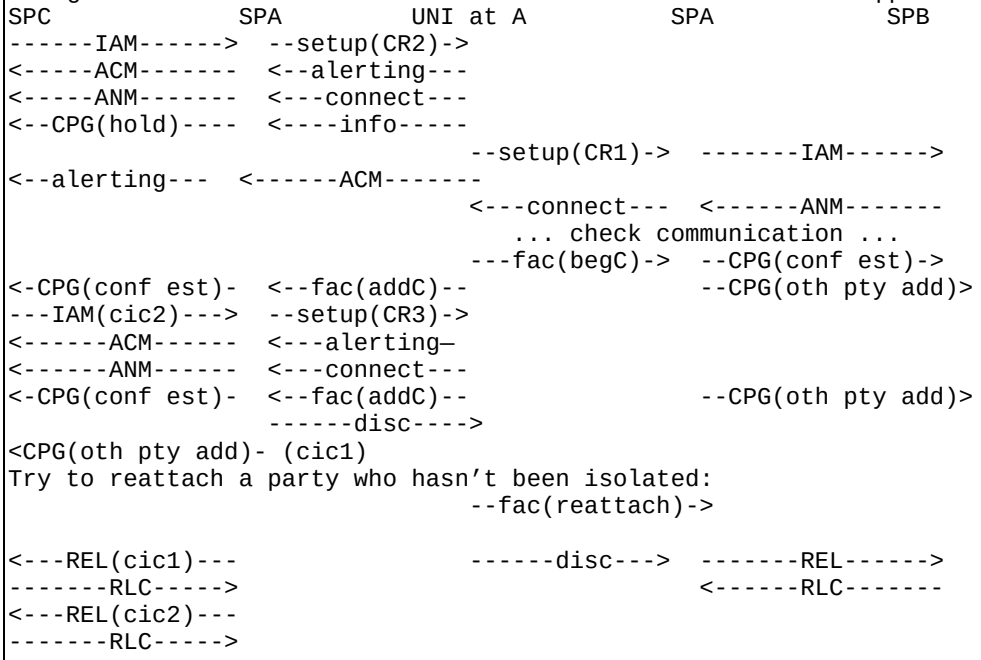
Isolation, reattachment, splitting, disconnection of a party, conference termination (unsuccessful)

To verify that if the procedures to isolate a party, reattach a party, split a party, disconnect a party, terminate conference fail, then the concerned call remains in the previous state and notifications are not sent to the affected nor to the non-affected remote parties.

NOTE: The procedure of reattachment fails, e.g. because the party was not formerly isolated.

Pre-test conditions

Arrange the data in the IUT such that the served user has subscribed to CONF supplementary service.



TSS CONF/	TP ISS_V_10_13	ISUP'97 reference 1.5.2.2.1, 1.5.2.3.1, 1.5.2.4.1/Q.734 [29]	Selection expression (IntermE OR DLE) AND PICS A.13/1	Q.788 [38] reference None

Test purpose
Notification procedure supported
To verify that the IUT can successfully transfer/deliver the required notifications in/from the CPG message.

```
Case a)
 SPC              SPA              SPB
 -------IAM------>  -------IAM------>
 <------ACM-------  <------ACM-------
          ... ringing tone ...
 <------ANM-------  <------ANM-------
           check communication
 -------CPG------>  -------CPG------>
 -------CPG------>  -------CPG------>
  ... check conference communication ...
 -------CPG------>  -------CPG------>
 -------CPG------>  -------CPG------>
 -------CPG------>  -------CPG------>
  ... check conference communication ...
 <------REL-------  <------REL-------
 -------RLC------>  -------RLC------>
```

1. Assist a call set up from SPC to SPB.
2. Check that the notification "conference established" is received in the CPG from conferee at SPC.
3. Check the notification "other party added" in the CPG.
4. Check the notification "isolated" in the CPG.
5. Check the notification "reattached" in the CPG.
6. Check the notification "other party disconnected" in the CPG.
7. Release the conference.

```
Case b)
 access            SPA              SPB
 <-----setup-------  <------IAM------
 -----alerting---->  -------ACM----->
        ... ringing tone ...
 -----connect----->  -------ANM----->
        check communication
 <-----notify------  <------CPG------
 <-----notify------  <------CPG------
  ... check conference communication ...
 <-----notify------  <------CPG------
 <-----notify------  <------CPG------
 <-----notify------  <------CPG------
  ... check conference communication ...
 <------disc-------  <------REL------
                     -------RLC----->
```

1. Assist a call set up from SPC to SPB.
2. Send the notification "conference established" is received in the CPG from conferee at SPC.
3. Send the notification "other party added" in the CPG.
4. Send the notification "isolated" in the CPG.
5. Send the notification "reattached" in the CPG.
6. Send the notification "other party disconnected" in the CPG.
7. Release the conference.

TSS CONF/	TP ISS_V_10_14	ISUP'97 reference 1.6.15/Q.734 [29]	Selection expression Local AND PICS A.13/1	Q.788 [38] reference None

Test purpose

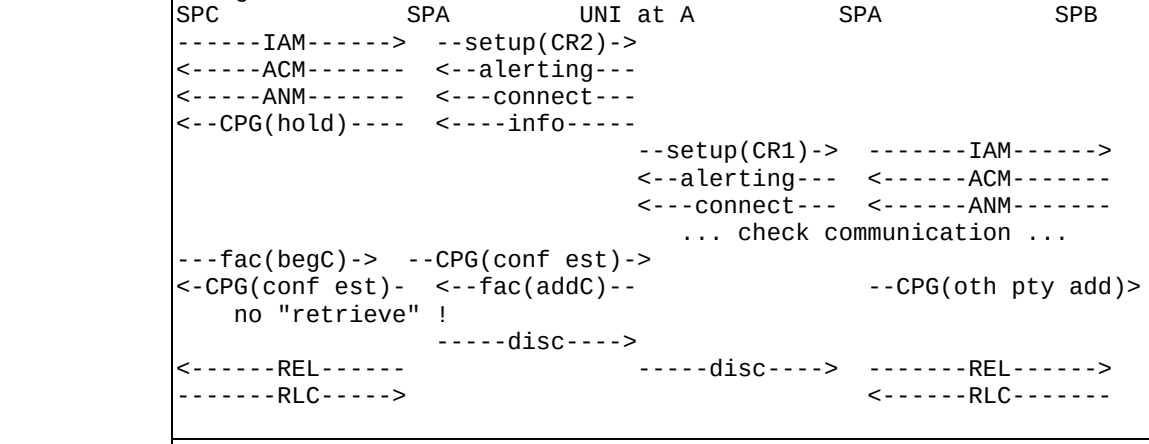
Interaction with HOLD - held user added to conference

To verify that no retrieve notification is sent to a user put on hold and subsequently added to a conference call, but that the IUT sends the "conference established" notification to the held user.

NOTE: The IUT should send the **CPG** with the **generic notification indicator** set to "conference established" to the held user.

Pre-test conditions

Arrange the data in the IUT such that the served user has subscribed to CONF and HOLD supplementary services.



1. Assist a call set up to UNI at SPB.
2. Establish a conference from SPA to SPB.
3. Add a new conferee to the established conference and notify subscriber at SPB by sending him/her "other party added" in the CPG.
4. The conference is released by call clearing by the served user at SPA.
5. Check if "conference established notification" was received by user at SPC.

TSS CONF/	TP ISS_V_10_15	ISUP'97 reference 1.6.15/Q.734 [29]	Selection expression Local	Q.788 [38] reference None

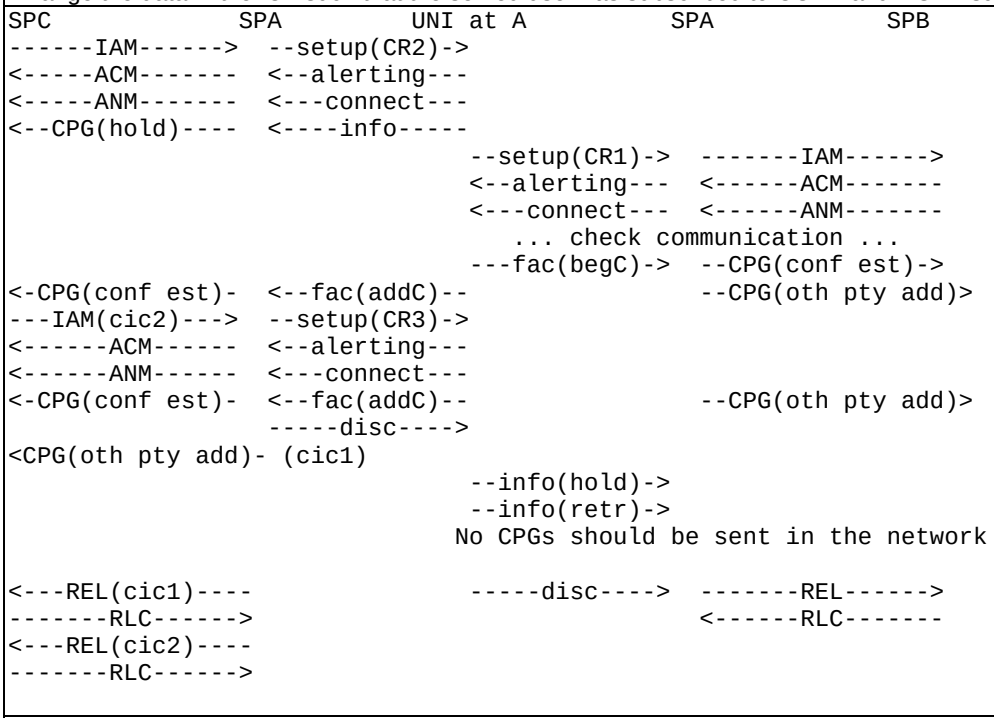
Test purpose

Interaction with HOLD - conference put on hold by conference controller

To verify that no hold and no retrieve notification is sent to the conferees when the conference controller puts the conference on hold.

Pre-test conditions

Arrange the data in the IUT such that the served user has subscribed to CONF and HOLD supplementary services.



1. Assist a call set up to UNI at SPB.
2. Establish a conference from SPA to SPB.
3. Add two new conferees to the established conference and notify subscriber at SPB by sending him/her "other party added" in the CPG.
4. No CPGs should be received by the conferee at SPB.
5. The conference is released by call clearing by the served user at SPA.
6. No CPGs should be received by the conferees at SPC.

TSS CONF/	TP ISS_V_10_16	ISUP'97 reference 1.6.15/Q.734 [29]	Selection expression Local	Q.788 [38] reference None

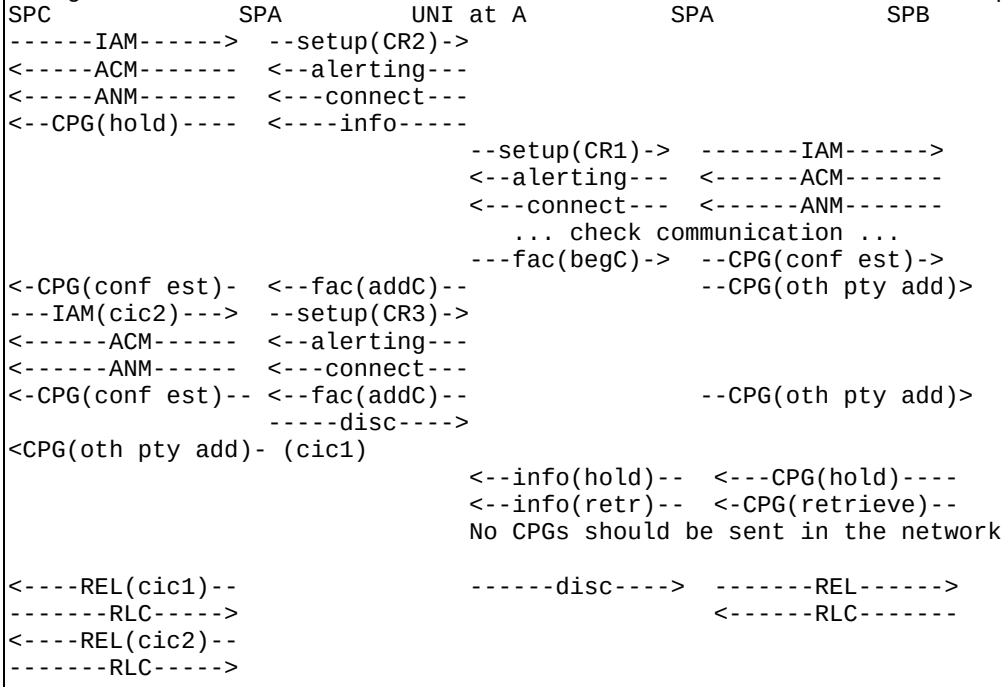
Test purpose

Interaction with HOLD - conference put on hold by conferee

To verify that when the IUT receives notification from a conferee that a call has been put on hold and subsequently retrieved, the IUT passes on this notification to the served user, but does not send any information to the other non-affected conferees.

Pre-test conditions

Arrange the data in the IUT such that the served user has subscribed to CONF and HOLD supplementary services.



1. Assist a call set up to UNI at SPB.
2. Establish a conference from SPA to SPB.
3. Add two new conferees to the established conference and notify subscriber at SPB by sending him/her "other party added" in the CPG.
4. Call hold is activated by the conferee at SPB, "remote hold" is sent in the CPG (no notification to the non-affected party, e.g. the served user at SPA).
5. Call is retrieved by user at SPB, "remote retrieval" is sent in the CPG (no notification to the non-affected users at SPC).
6. No CPGs should be received by the conferee at SPB.
7. The conference is released by call clearing by the served user at SPA.
8. No CPGs should be received by the conferees at SPC.

6.2.11 Explicit call transfer (ECT)

TSS ECT/	TP ISS_V_11_1	ISUP'97 reference 7.5.2.1.1.1 a)/ EN 300 356-14 [16]	Selection expression Local AND PICS A.14/1	Q.788 [38] reference None

Test purpose

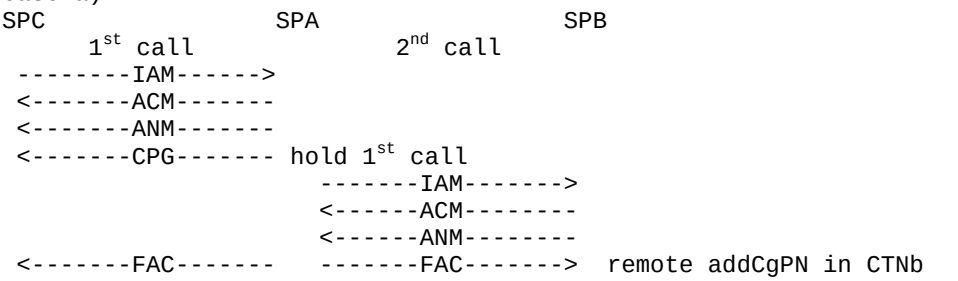
Capability of storing and sending the additional calling party number in the call transfer number.

To verify that the IUT is able to store the additional calling party number in the **generic number** when the **calling party number** and the **generic number** have been received from the remote user. This information is sent by the IUT to the other remote user in the **call transfer number** in either the **FAC** or **CPG** when the call transfer is activated.

Pre-test conditions

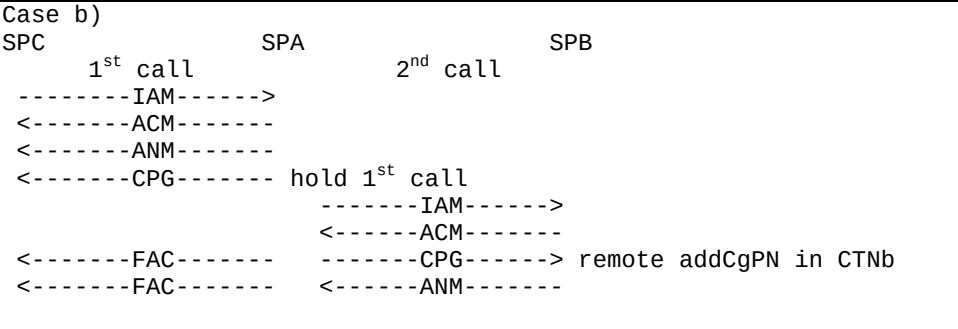
Arrange the data in the IUT so that the served user subscribes to HOLD, CW and ECT.

Case a)



1. Assist call set up for the 1st call and then initiate the 2nd call at the UNI A (IUT).
2. Initiate the 1st call from SPC to the IUT (SPA) using the number TSP_Nb_A on the 1st B-channel.
3. Assist the 2nd call set up from UNI A to the IUT on the 2nd B-channel.
4. FAC with GenNot: "call transfer, active", ServAct: "call transfer" and CTNb - TSP_GenNb_C.

Case b)



1. Assist call set up for the 1st call and then initiate the 2nd call at the UNI A (IUT).
2. Initiate the 1st call from SPC to the IUT (SPA) using the number TSP_Nb_A on the 1st B-channel.
3. Assist the 2nd call set up from UNI A to the IUT on the 2nd B-channel.
4. CPG (progress) with GenNot: "call transfer, active", ServAct: "call transfer" and CTNb - TSP_GenNb_C.

TSS ECT/	TP ISS_V_11_2	ISUP'97 reference 7.5.2.1.1.1 a)/ EN 300 356-14 [16]	Selection expression Local AND PICS A.14/1	Q.788 [38] reference None

Test purpose

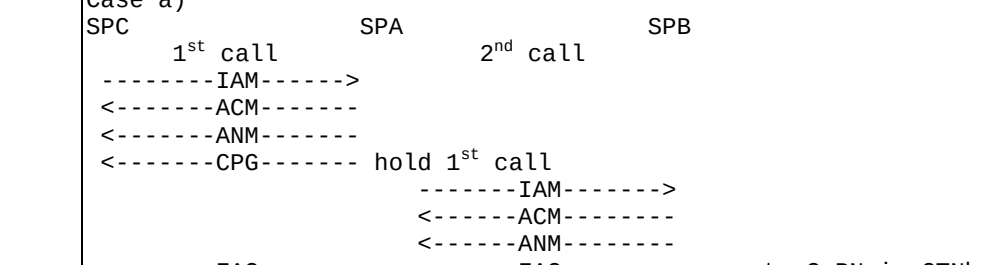
Capability of storing and sending the calling party number in the call transfer number.

To verify that the IUT is able to store the **calling party number** when only this CLI has been received from the remote user. This information is sent by the IUT to the other remote user in the **call transfer number** in either the **FAC** or **CPG** when the call transfer is activated.

Pre-test conditions

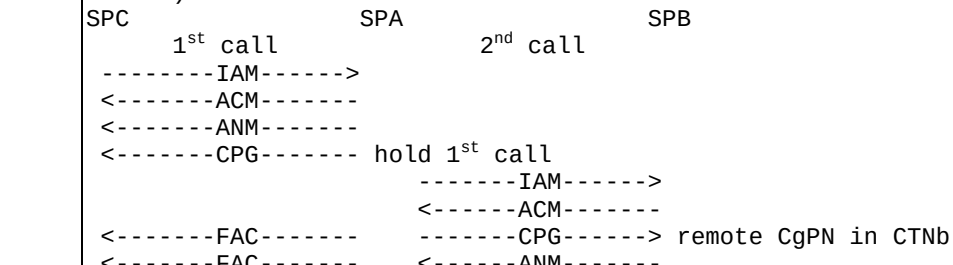
Arrange the data in the IUT so that the served user subscribes to HOLD, CW and ECT.

Case a)



1. Assist call set up for the 1st call and then initiate the 2nd call at the UNI A (IUT).
2. Initiate the 1st call from SPC to the IUT (SPA) using the number TSP_Nb_A on the 1st B-channel.
3. Assist the 2nd call set up from UNI A to the IUT on the 2nd B-channel.
4. FAC with GenNot: "call transfer, active", ServAct: "call transfer" and CTNb - TSP_Nb_C.

Case b)



1. Assist call set up for the 1st call and then initiate the 2nd call at the UNI A (IUT).
2. Initiate the 1st call from SPC to the IUT (SPA) using the number TSP_Nb_A on the 1st B-channel.
3. Assist the 2nd call set up from UNI A to the IUT on the 2nd B-channel.
4. CPG (progress) with GenNot: "call transfer, active", ServAct: "call transfer" and CTNb - TSP_Nb_C.

TSS ECT/	TP ISS_V_11_3	ISUP'97 reference 7.5.2.1.1.1 b)/ EN 300 356-14 [16]	Selection expression Local AND PICS A.14/1	Q.788 [38] reference None

Test purpose

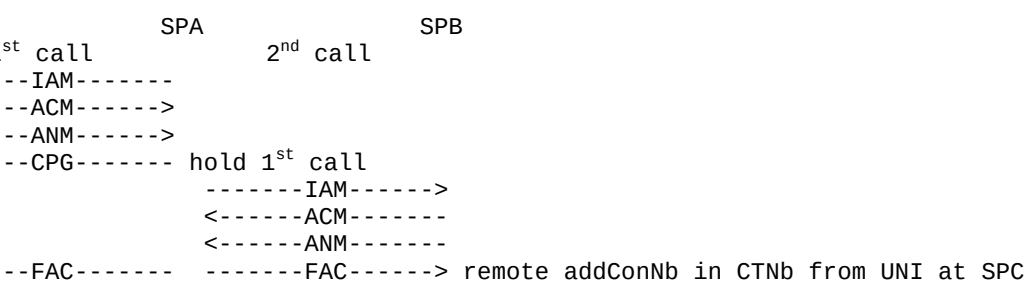
Capability of storing and sending the additional connected number in the call transfer number.

To verify that the IUT is able to store the additional connected number in the **generic number** when the **connected number** and the **generic number** have been received from the remote user. This information is sent by the IUT to the other remote user in the **call transfer number** in either the **FAC** or **CPG** when the call transfer is activated.

Pre-test conditions

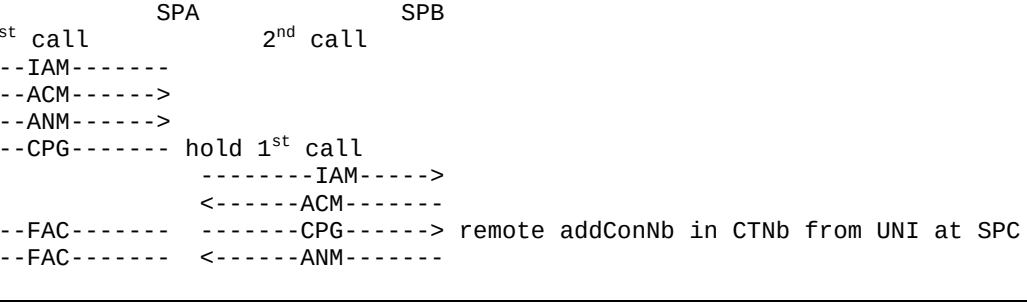
Arrange the data in the IUT so that the served user subscribes to HOLD and ECT.

Case a)



1. Initiate 2 calls from the UNI A (IUT).
2. Assist 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. FAC with GenNot: "call transfer, active", ServAct: "call transfer" and CTNb - TSP_GenNb_C.

Case b)



1. Initiate 2 calls from the UNI A (IUT).
2. Assist 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. CPG (progress) with GenNot: "call transfer, active", ServAct: "call transfer" and CTNb - TSP_GenNb_C.

TSS ECT/	TP ISS_V_11_4	ISUP'97 reference 7.5.2.1.1.1 b)/ EN 300 356-14 [16]	Selection expression Local AND PICS A.14/1	Q.788 [38] reference None

Test purpose

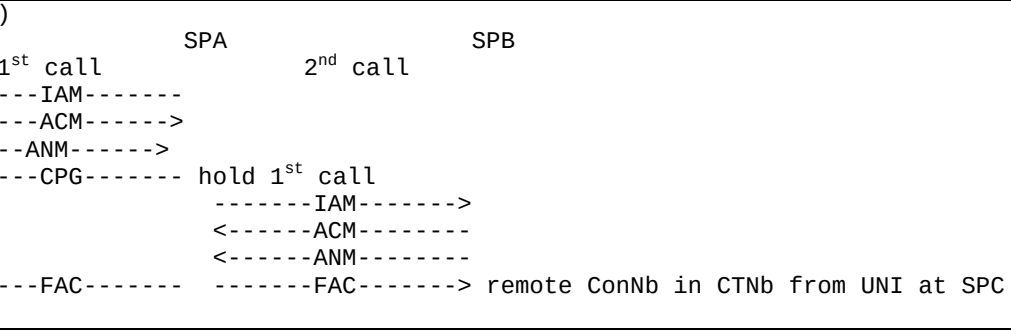
Capability of storing and sending the connected number in call transfer number.

To verify that the IUT is able to store **connected number** when only this COL has been received from the remote user. This information is sent by the IUT to the other remote user in the **call transfer number** in either the **FAC** or **CPG** when the call transfer is activated.

Pre-test conditions

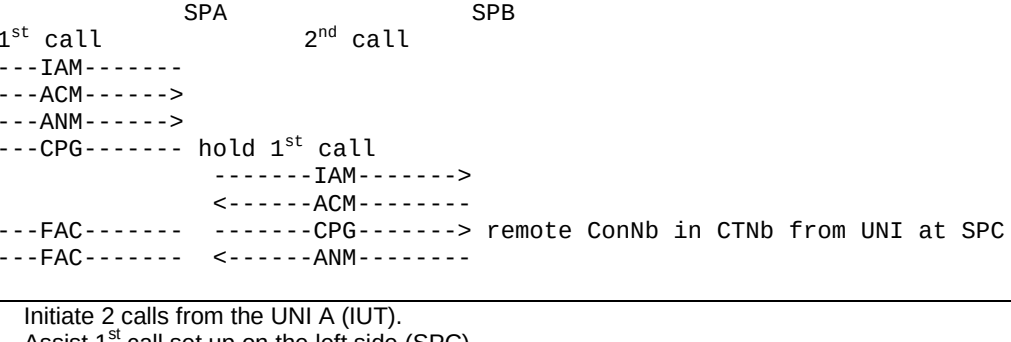
Arrange the data in the IUT so that the served user subscribes to HOLD and ECT.

Case a)



1. Initiate 2 calls from the UNI A (IUT).
2. Assist 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. FAC with GenNot: "call transfer, active", ServAct: "call transfer" and CTNb - TSP_Nb_C.

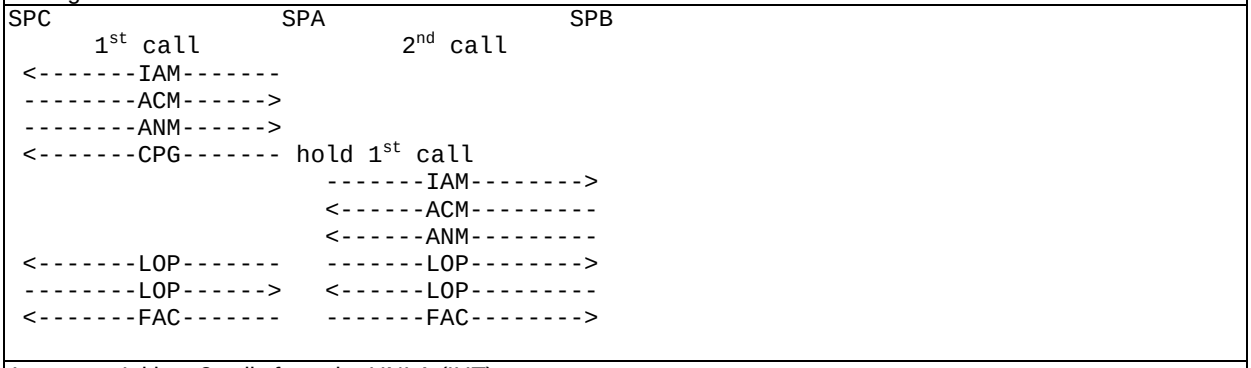
Case b)



1. Initiate 2 calls from the UNI A (IUT).
2. Assist 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. CPG (progress) with GenNot: "call transfer, active", ServAct: "call transfer" and CTNb - TSP_Nb_C.

TSS ECT/	TP ISS_V_11_5	ISUP'97 reference 7.5.2.1.1.2.1/ EN 300 356-14 [16]	Selection expression Local AND PICS A.14/2	Q.788 [38] reference None

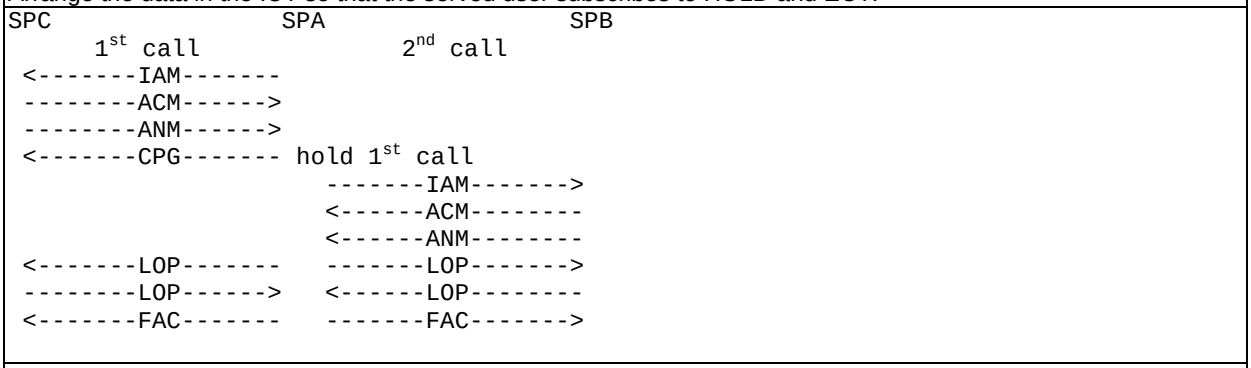
Test purpose
Loop prevention procedure - initiation
To verify that the local exchange controlling the ECT can successfully initiate the loop prevention procedure by sending **LOP** with **loop prevention indicator** set to "request" and with **call transfer reference** for both calls.
Pre-test conditions
Arrange the data in the IUT so that the served user subscribes to HOLD and ECT.



1. Initiate 2 calls from the UNI A (IUT).
2. Assist 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. Send back the received CTRef with "no loop exists" indication.
5. FAC activating the ECT service.

TSS ECT/	TP ISS_V_11_6	ISUP'97 reference 7.5.2.1.1.2.1/ EN 300 356-14 [16]	Selection expression Local AND PICS A.14/2	Q.788 [38] reference None

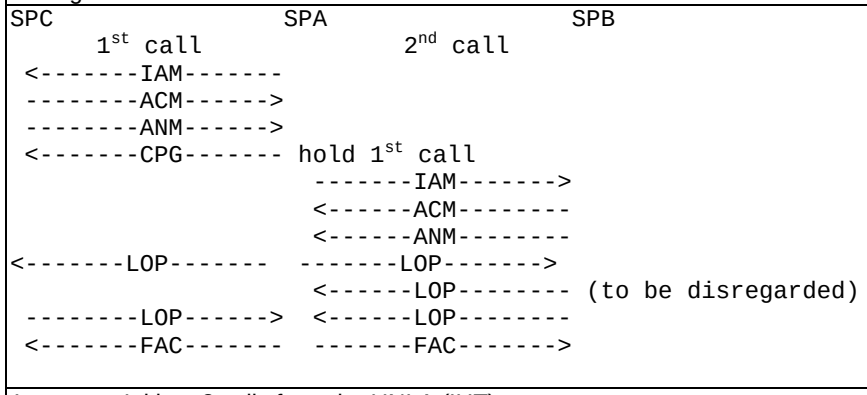
Test purpose
Loop prevention procedure - successful response
To verify that the local exchange controlling the ECT can successfully perform a call transfer if a **LOP** with **loop prevention indicator** set to "response" is received and "no loop exists", and the call identity matches the one used by the IUT.
Pre-test conditions
Arrange the data in the IUT so that the served user subscribes to HOLD and ECT.



1. Initiate 2 calls from the UNI A (IUT).
2. Assist 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. Send back the received CTRef with "no loop exists" indication.
5. FAC activating the ECT service (GenNot: "call transfer, active").

TSS ECT/	TP ISS_I_11_7	ISUP'97 reference 7.5.2.1.1.2.1/ EN 300 356-14 [16]	Selection expression Local AND PICS A.14/2	Q.788 [38] reference None

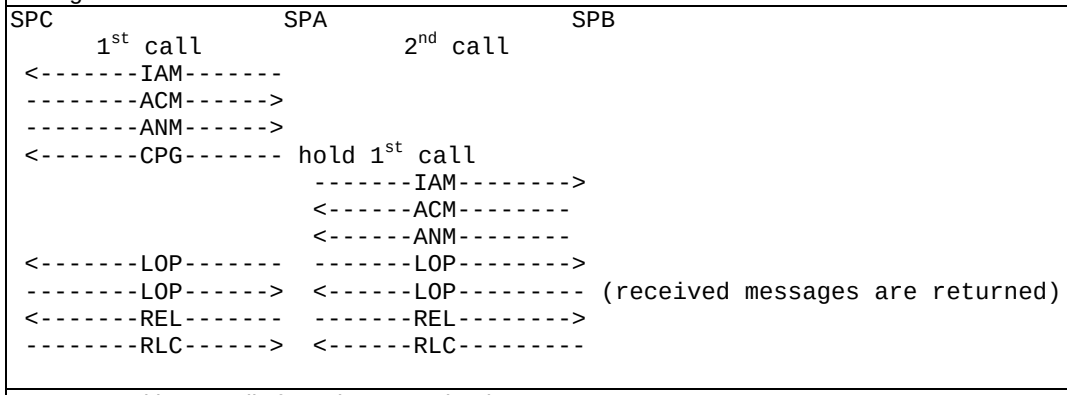
Test purpose
Loop prevention procedure - wrong call transfer identity ignored
To verify that the local exchange controlling the ECT disregards the **LOP** with **loop prevention indicator** set to "response" and "no loop exists", if the call transfer identity does not match the one used by the IUT.
Pre-test conditions
Arrange the data in the IUT so that the served user subscribes to HOLD and ECT.



1. Initiate 2 calls from the UNI A (IUT).
2. Assist 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. Send back an altered (incremented) CTRef with "no loop exists" indication, to be disregarded.
5. Send back the received CTRef with "no loop exists" indication.
6. FAC activating the ECT service.

TSS ECT/	TP ISS_I_11_8	ISUP'97 reference 7.5.2.1.1.2.1/ EN 300 356-14 [16]	Selection expression Local AND PICS A.14/2	Q.788 [38] reference None

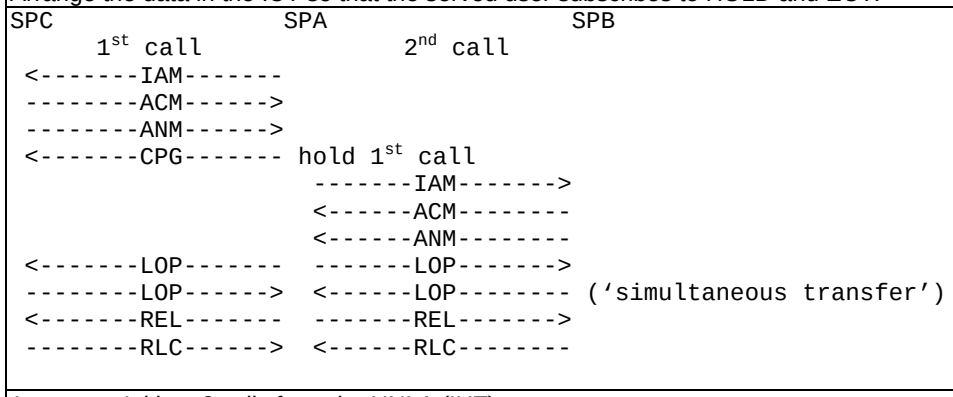
Test purpose
Loop prevention procedure - unsuccessful (loop exists)
To verify that the local exchange controlling the ECT rejects the call transfer if the **LOP** is received with **loop prevention indicator** set to "request" and the **call transfer reference** matches the one used by the IUT.
Pre-test conditions
Arrange the data in the IUT so that the served user subscribes to HOLD and ECT.



1. Initiate 2 calls from the UNI A (IUT).
2. Assist 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. Send back the received CTRef with LOPInd "request" (identical to the one received).
5. Call is rejected.

TSS ECT/	TP ISS_V_11_9	ISUP'97 reference 7.5.2.1.1.2.1; 7.6.2/ EN 300 356-14 [16]	Selection expression Local AND PICS A.14/2	Q.788 [38] reference None

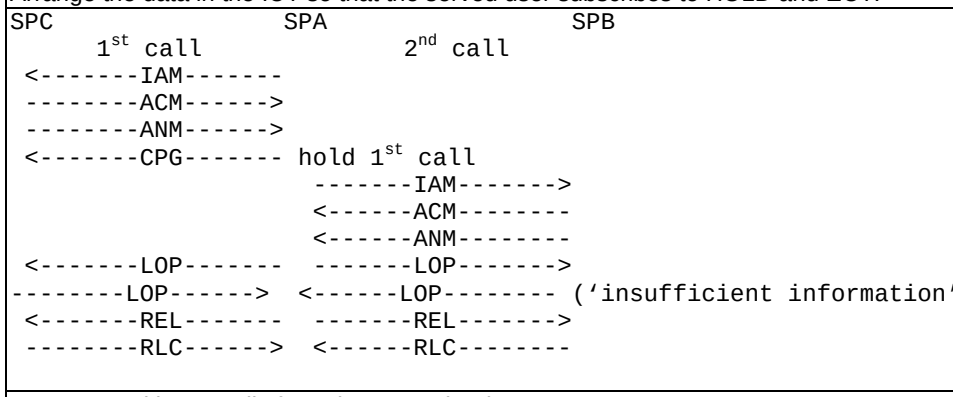
Test purpose
Loop prevention procedure - unsuccessful (interaction with ECT)
To verify that the local exchange controlling the ECT rejects the call transfer if the **LOP** is received with **loop prevention indicator** set to "response" and "simultaneous transfer" in case of interaction with ECT.
Pre-test conditions
Arrange the data in the IUT so that the served user subscribes to HOLD and ECT.



1. Initiate 2 calls from the UNI A (IUT).
2. Assist 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. Send back the received CTRef with LOPInd "response" set to "simultaneous transfer".
5. The call is rejected.

TSS ECT/	TP ISS_V_11_10	ISUP'97 reference 7.5.2.1.1.2.1/ EN 300 356-14 [16]	Selection expression Local AND PICS A.14/2 AND PICS A.14/8	Q.788 [38] reference None

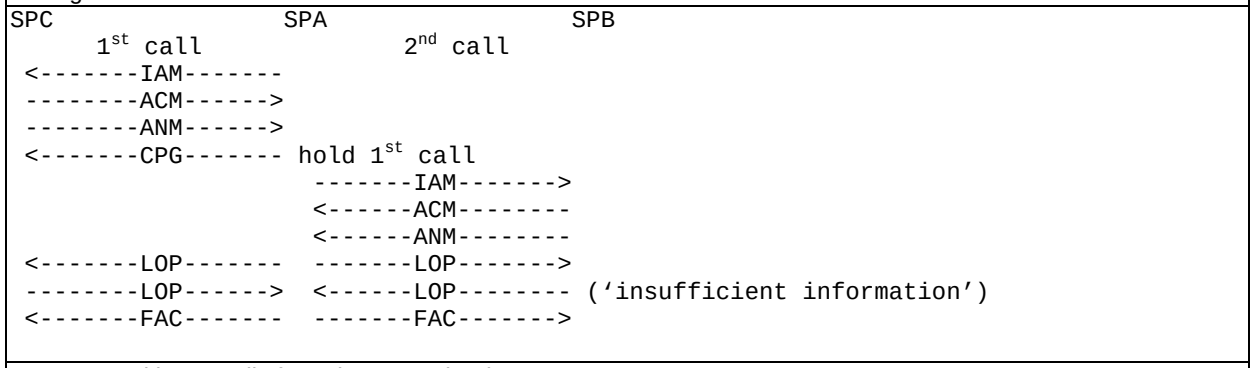
Test purpose
Loop prevention procedure - unsuccessful (interworking situation)
To verify that the local exchange controlling the ECT rejects the call transfer if the **LOP** is received with **loop prevention indicator** set to "response" and "insufficient information" from e.g. interworking situations.
Pre-test conditions
Arrange the data in the IUT so that the served user subscribes to HOLD and ECT.



1. Initiate 2 calls from the UNI A (IUT).
2. Assist 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. Send back the received CTRef with LOPInd "response" set to "insufficient information".
5. Call is rejected.

TSS ECT/	TP ISS_V_11_11	ISUP'97 reference 7.5.2.1.1.2.1/ EN 300 356-14 [16]	Selection expression Local AND PICS A.14/2 AND PICS A.14/9	Q.788 [38] reference None

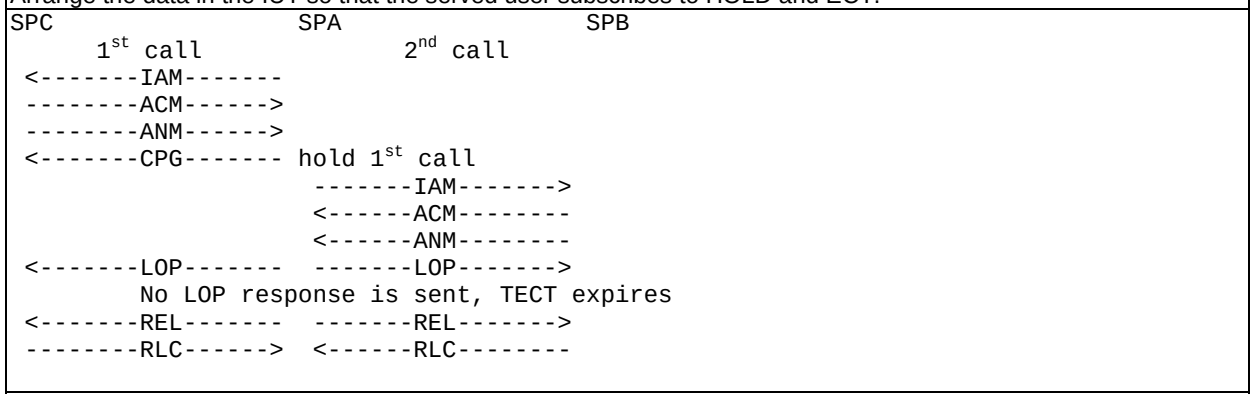
Test purpose
Loop prevention procedure - successful (interworking situation)
To verify that the local exchange controlling the ECT completes the call transfer if the **LOP** is received with **loop prevention indicator** set to "response" and "insufficient information" from e.g. interworking situations.
Pre-test conditions
Arrange the data in the IUT so that the served user subscribes to HOLD and ECT.



1. Initiate 2 calls from the UNI A (IUT).
2. Assist 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. Send back the received CTRef with LOPInd "response" set to "insufficient information".
5. FAC activating the ECT service.

TSS ECT/	TP ISS_V_11_12	ISUP'97 reference 7.5.2.1.1.2.1/ EN 300 356-14 [16]	Selection expression Local AND PICS A.14/2 AND PICS A.14/4	Q.788 [38] reference None

Test purpose
Loop prevention procedure - unsuccessful on timer expiry
To verify that the local exchange controlling the ECT rejects the call transfer if no **LOP** is received within $\mathbf{T_{ECT}}$ expiry
Pre-test conditions
Arrange the data in the IUT so that the served user subscribes to HOLD and ECT.



1. Initiate 2 calls from the UNI A (IUT).
2. Assist 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. Call is rejected.

TSS ECT/	TP ISS_V_11_13	ISUP'97 reference 7.5.2.1.1.2.1/ EN 300 356-14 [16]	Selection expression Local AND PICS A.14/2 AND PICS A.14/5	Q.788 [38] reference None

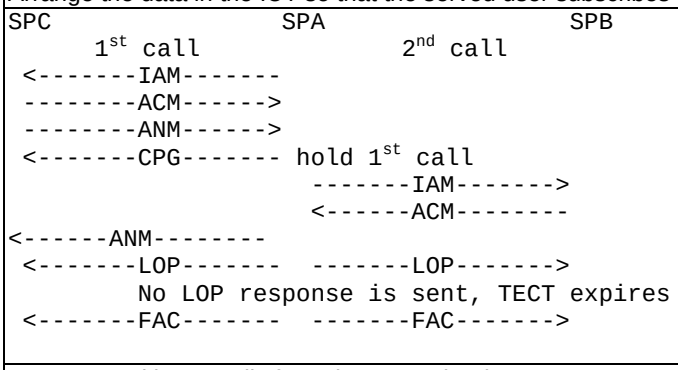
Test purpose

Loop prevention procedure - successful on timer expiry

To verify that the local exchange controlling the ECT completes the call transfer if no **LOP** is received within $\mathbf{T_{ECT}}$ expiry

Pre-test conditions

Arrange the data in the IUT so that the served user subscribes to HOLD and ECT.



TSS ECT/	TP ISS_V_11_14	ISUP'97 reference 7.5.2.1.1.2.2 a)/ EN 300 356-14 [16]	Selection expression Local	Q.788 [38] reference None

Test purpose

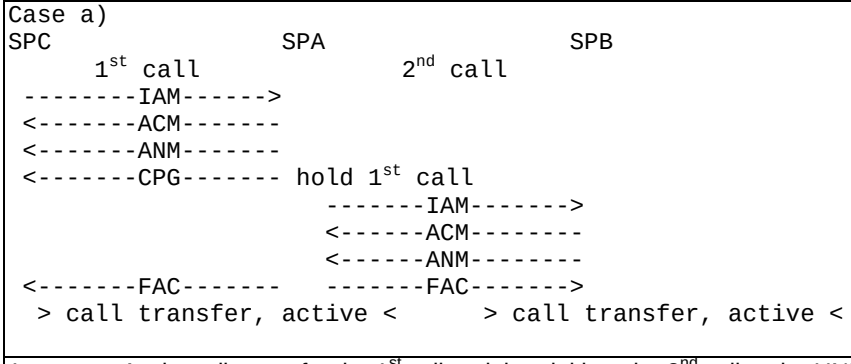
Facility message with generic notification sent to the remote user

To verify that the local exchange controlling the ECT can successfully initiate a call transfer by sending **FAC** with the **generic notification** set to "call transfer, active" or "call transfer, alerting" and the **service activation** parameter set to "call transfer".

Pre-test conditions

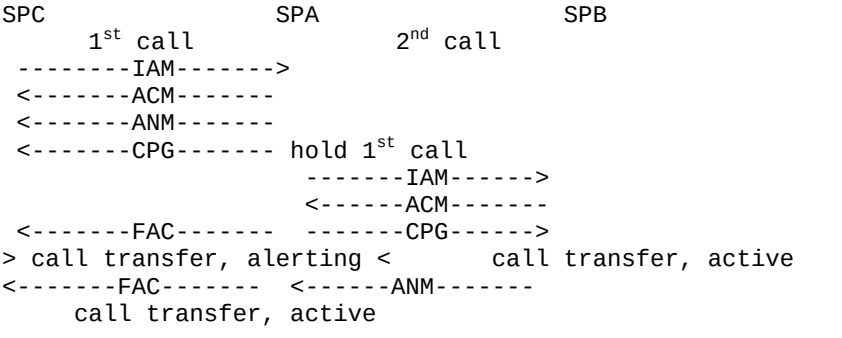
Arrange the data in the IUT so that the served user subscribes to HOLD and ECT.

Case a)



1. Assist call setup for the 1st call and then initiate the 2nd call at the UNI A (IUT).
2. Initiate the 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. FAC with GenNot: "call transfer, active" and ServAct: "call transfer".

Case b)

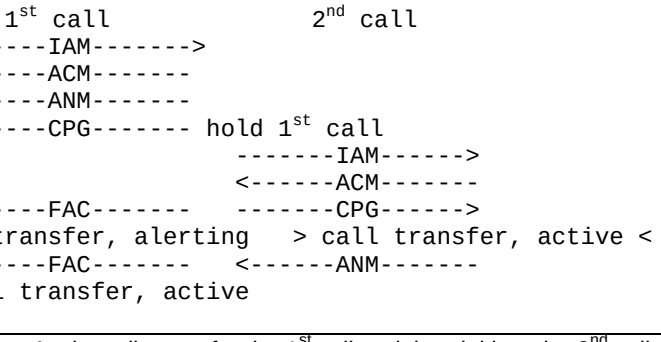


1. Assist call setup for the 1st call and then initiate the 2nd call at the UNI A (IUT).
2. Initiate the 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. CPG (progress) with GenNot: "call transfer, active".

TSS ECT/	TP ISS_V_11_15	ISUP'97 reference 7.5.2.1.1.2.2 a)/ EN 300 356-14 [16]	Selection expression Local	Q.788 [38] reference None

Test purpose
Call progress message with generic notification sent to the remote user
To verify that the local exchange (controlling the ECT) can successfully initiate a call transfer by sending **CPG** with the **generic notification** set to "call transfer, active" and the **service activation** parameter set to "call transfer".

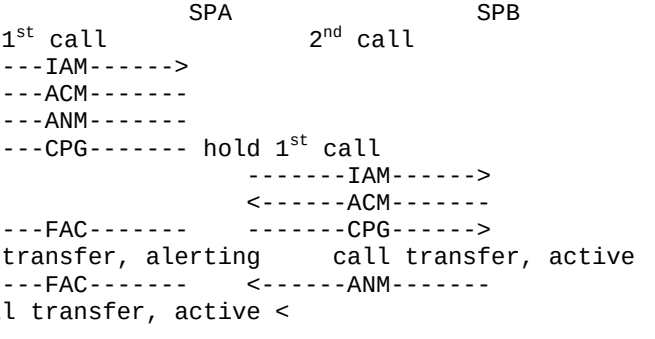
Pre-test conditions
Arrange the data in the IUT so that the served user subscribes to HOLD and ECT.



1. Assist call setup for the 1st call and then initiate the 2nd call at the UNI A (IUT).
2. Initiate the 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. CPG (progress) with GenNot: "call transfer, active" and ServAct: "call transfer".

TSS ECT/	TP ISS_V_11_16	ISUP'97 reference 7.5.2.1.1.2.2 b)/ EN 300 356-14 [16]	Selection expression Local	Q.788 [38] reference None

Test purpose
Facility message send upon receipt of the ANM when the ECT is invoked while one call is alerting
To verify that, in case the ECT is invoked while one call is alerting, as soon as the local exchange (controlling the ECT) receives the **ANM**, it can successfully send to the other remote user the **FAC** with **service activation** set to "call transfer" and the **generic notification** set to "call transfer, active".
Pre-test conditions
Arrange the data in the IUT so that the served user subscribes to HOLD and ECT.



1. Assist call setup for the 1st call and then initiate the 2nd call at the UNI A (IUT).
2. Initiate the 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. CPG (progress) with GenNot: "call transfer, active".

TSS ECT/	TP ISS_V_11_17	ISUP'97 reference 7.5.2.1.1.2.2 b)/ EN 300 356-14 [16]	Selection expression Local AND PICS A.14/1	Q.788 [38] reference None

Test purpose

Capability of sending the additional connected number in the call transfer number parameter when the ECT is invoked while one call is alerting

To verify that, in case the ECT is invoked while one call is alerting, the **FAC** sent to the other remote user upon receipt of the **ANM** conveys the **call transfer number** parameter with the information received in the **generic number** parameter if both the **connected number** and an additional connected number in the **generic number** are received in the **ANM**.

Pre-test conditions

Arrange the data in the IUT so that the served user subscribes to HOLD and ECT.

```
SPC                 SPA                 SPB
      1st call              2nd call
 <-------IAM-------
 -------ACM------>
 -------ANM------>
 <-------CPG------- hold 1st call
                     -------IAM------->
                     <------ACM--------
 <-------FAC-------  -------CPG------->
 <-------FAC-------  <------ANM--------
remote addConNb in CTNb from UNI at SPB
```

1. Initiate 2 calls from the UNI A (IUT).
2. Assist 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. CPG (progress) with GenNot: "call transfer, active".

TSS ECT/	TP ISS_V_11_18	ISUP'97 reference 7.5.2.1.1.2.2 b)/ EN 300 356-14 [16]	Selection expression Local AND PICS A.14/1	Q.788 [38] reference None

Test purpose

Capability of sending the connected number in the call transfer number parameter when the ECT is invoked while one call is alerting

To verify that, in case the ECT is invoked while one call is alerting, the **FAC** sent to the other remote user upon receipt of the **ANM** conveys the **call transfer number** parameter with the information received in the **connected number** parameter if only the **connected number** is received in the **ANM**.

Pre-test conditions

Arrange the data in the IUT so that the served user subscribes to HOLD and ECT.

```
SPC                 SPA                 SPB
      1st call              2nd call
 <-------IAM-------
 -------ACM------>
 -------ANM------>
 <-------CPG------- hold 1st call
                     -------IAM------->
                     <------ACM--------
 <-------FAC-------  -------CPG------->
 <-------FAC-------  <------ANM--------
remote ConNb in CTNb from UNI at SPB
```

1. Initiate 2 calls from the UNI A (IUT).
2. Assist 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. CPG (progress) with GenNot: "call transfer, active".

TSS ECT/	TP ISS_V_11_19	ISUP'97 reference 7.4; 7.5.2.2.1; 7.5.2.3.1; 7.5.2.4.1/ EN 300 356-14 [16]	Selection expression IntermE AND PICS A14/2	Q.788 [38] reference None

Test purpose
Transparent transfer of information of the loop prevention procedure message
To verify that the exchange can successfully pass on the **loop prevention indicator** and the **call transfer reference** in the **LOP** related to the call transfer service.

```
SPC                SPA                SPB
 --------IAM------>  -------IAM-------->
 <-------ACM-------  <------ACM---------
 <-------ANM-------  <------ANM---------
 --------LOP------>  -------LOP-------->
 <-------LOP-------  <------LOP---------
 --------FAC------>  -------FAC-------->
```

1. Initiate a call from the UNI at SPC.
2. Send back the received CTRef with "no loop exists" indication.
3. FAC activating the ECT service.

TSS ECT/	TP ISS_V_11_20	ISUP'97 reference 7.4; 7.5.2.2.1; 7.5.2.3.1; 7.5.2.4.1/ EN 300 356-14 [16]	Selection expression IntermE	Q.788 [38] reference None

Test purpose
Transparent transfer of information in the FAC or CPG
To verify that the exchange can successfully pass on the **access transport** and the **generic notification indicator** in the **FAC** or **CPG** related to the call transfer service.

Case a)

```
SPC                SPA                SPB
 --------IAM------>  -------IAM-------->
 <-------ACM-------  <------ACM---------
 <-------ANM-------  <------ANM---------
 --------FAC------>  -------FAC--------> call transfer, active
 --------FAC------>  -------FAC--------> sub-address in ATP from UNI at E
 <-------FAC-------  <------FAC--------- sub-address in ATP from UNI at B
```

1. Initiate a call from the UNI at SPC. UNI at SPC will initiate call transfer.
2. FAC with GenNot: "call transfer, active".
3. Receive sub-address from UNI at SPE, beyond SPC.
4. Send sub-address of UNI at SPB.

Case b)

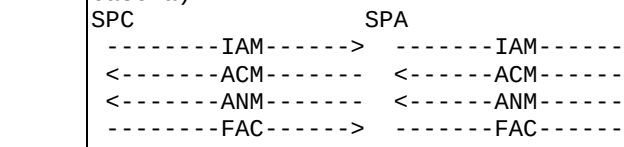
```
SPC                SPA                SPB
 --------IAM------>  -------IAM-------->
 <-------ACM-------  <------ACM---------
 --------CPG------>  -------CPG--------> call transfer, active
 <-------ANM-------  <------ANM---------
 --------FAC------>  -------FAC--------> sub-address in ATP from UNI at E
 <-------FAC-------  <------FAC--------- sub-address in ATP from UNI at B
```

1. Initiate a call from the UNI at SPC. UNI at SPC will initiate call transfer.
2. CPG with GenNot: "call transfer, active".
3. Receive sub-address from UNI at SPE, beyond SPC.
4. Send sub-address of UNI at SPB.

TSS ECT/	TP ISS_V_11_21	ISUP'97 reference 7.3; 7.5.2.3.1; 7.5.2.4.1/ EN 300 356-14 [16]	Selection expression Gateway AND PICS A.14/6	Q.788 [38] reference None

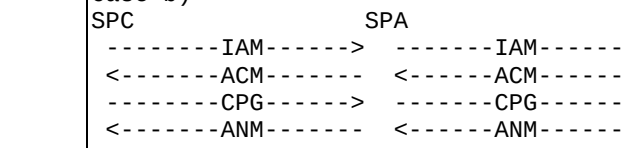
Test purpose
Call transfer number - removal of number
To verify that the exchange removes the **call transfer number** in the **FAC** or **CPG** before sending it to the next exchange, if its indicator is set to "presentation restricted" and there is no bilateral agreement.

Case a)



1. Initiate a call from the UNI at SPC. UNI at SPC will initiate call transfer.
2. FAC with GenNot: "call transfer, active" and CTNb removed.

Case b)

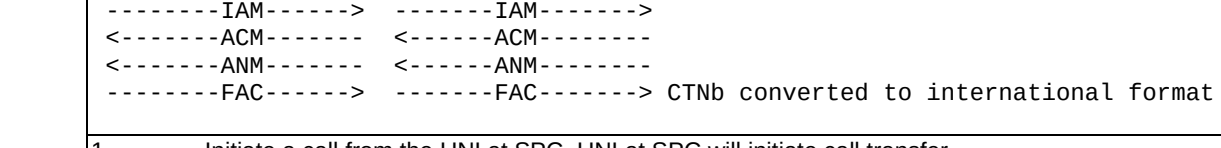


1. Initiate a call from the UNI at SPC. UNI at SPC will initiate call transfer.
2. CPG (progress) with GenNot: "call transfer, active" and no CTNb.

TSS ECT/	TP ISS_V_11_22	ISUP'97 reference 7.3; 7.5.2.3.1/ EN 300 356-14 [16]	Selection expression OutIE	Q.788 [38] reference None

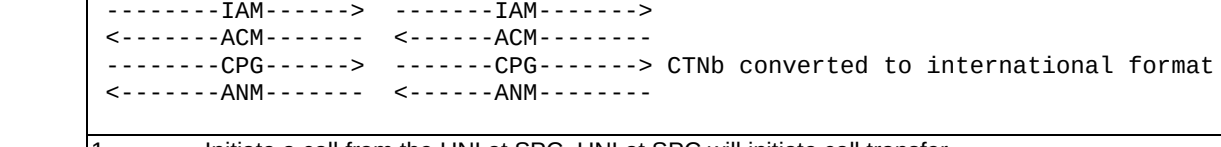
Test purpose
Call transfer number - conversion to international number
To verify that the IUT converts the **call transfer number** to international format. The nature of address indicator shall be set to "international number".

Case a)



1. Initiate a call from the UNI at SPC. UNI at SPC will initiate call transfer.
2. FAC with GenNot: "call transfer, active" and international CTNb.

Case b)

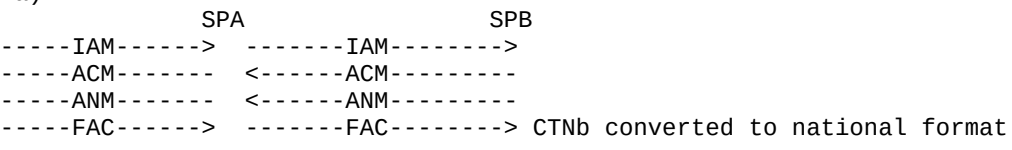


1. Initiate a call from the UNI at SPC. UNI at SPC will initiate call transfer.
2. CPG with GenNot: "call transfer, active" and international CTNb.

TSS ECT/	TP ISS_V_11_23	ISUP'97 reference 7.3; 7.5.2.4.1/ EN 300 356-14 [16]	Selection expression IncIE	Q.788 [38] reference None

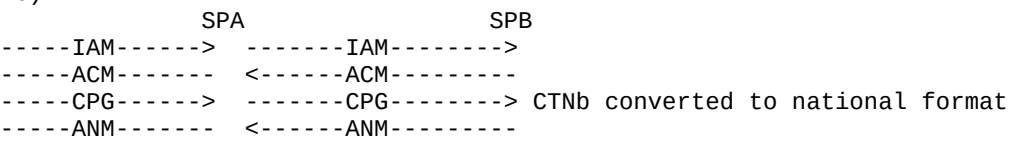
Test purpose
Call transfer number - removal of own country code
To verify that the IUT removes the country code in the address signals of the **call transfer number** if it is the network's own country code. The nature of address indicator shall be set to "national (significant) number".

Case a)



1. Initiate a call from the UNI at SPC. UNI at SPC will initiate call transfer.
2. FAC with GenNot: "call transfer, active" and national (significant) CTNb.

Case b)



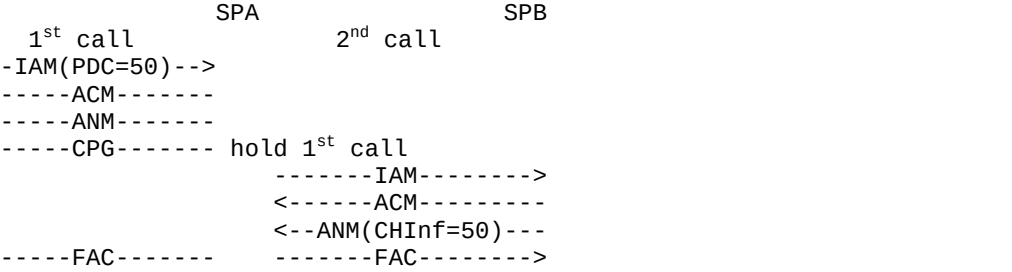
1. Initiate a call from the UNI at SPC. UNI at SPC will initiate call transfer.
2. CPG with GenNot: "call transfer, active" and national (significant) CTNb.

TSS ECT/	TP ISS_V_11_24	ISUP'97 reference 7.5.2.1.1.3 a)/ EN 300 356-14 [16]	Selection expression Local AND BCall PICS A.13/11 AND BCall PICS A.13/13	Q.788 [38] reference None

Test purpose
ECT - interaction with echo control
To verify that the local exchange (controlling the ECT) can successfully initiate echo control procedures, when the total propagation delay for the two legs of the call to be transferred requires usage of echo control devices. The information to be summed is received in the **propagation delay counter** of the **IAM** for incoming calls and in the **call history information** of the **ANM/CON** for outgoing calls.

NOTE: The used PICS are defined for the basic call (BCall).

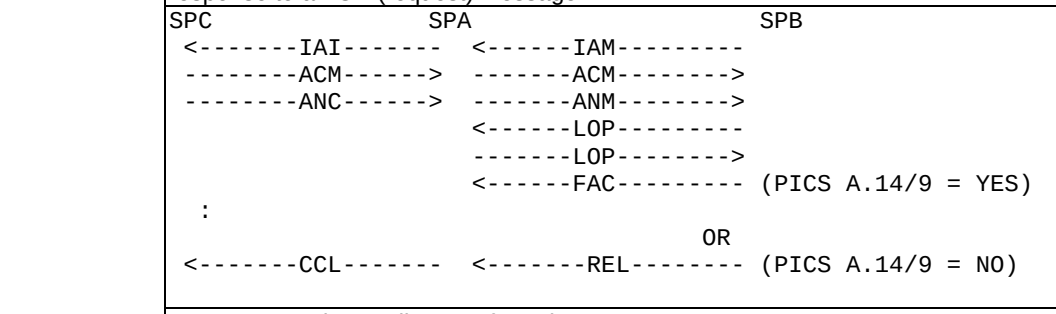
Pre-test conditions
Arrange the data in the IUT so that the served user subscribes to ECT.



1. Assist call setup for the 1st call and then initiate the 2nd call at the UNI A (IUT).
2. Initiate the 1st call from SPC to the IUT (SPA) using the number TSP_Nb_A on the 1st B-channel. The stimulus IAM contains an initial propagation delay value of e.g. 50 ms. The actual value is stored in PIXIT table.
3. Assist the 2nd call set up from UNI A to the IUT on the 2nd B-channel.
4. Send an ANM with Call history information of e.g. 50 ms.
5. FAC with GenNot: "call transfer, active". The sum (in this case 100 ms) of the propagation delays on the two routes would require echo controlling devices. Are echo control devices enabled for the connection (both incoming/outgoing at the local exchange) or is some better placement searched?
6. For further study,(see also CONF test case ISS_10_1).

TSS ECT/	TP ISS_V_11_25	ISUP'97 reference 7.7/ EN 300 356-14 [16]	Selection expression IWorkE AND PICS A.14/7	Q.788 [38] reference None

Test purpose
Loop prevention procedure - Interworking with protocols not supporting loop prevention
To verify that the IUT is able to support call control interworking between ISUP'97and protocols not supporting the loop prevention procedure, and return a **LOP** (response) message with the indication "insufficient information" in response to a **LOP** (request) message.

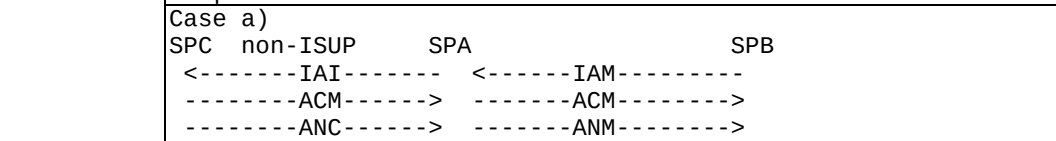


1. Assist a call set up from the UNI at SPB on a non-ISUP route.
2. Send LOP request.
3. Receive LOP response with the same CTRef and "insufficient information".
4. Complete call (YES to PICS question A.14/9) and send FAC with GenNot: "call transfer, active".
5. Reject call (YES to PICS question A.14/8).
6. See also ECT test cases ISS_V_11_10 and ISS_V_11_11.

TSS ECT/	TP ISS_V_11_26	ISUP'97 reference 7.7/ EN 300 356-14 [16]	Selection expression IWorkE	Q.788 [38] reference None

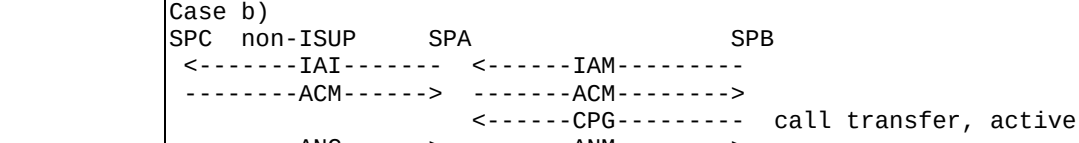
Test purpose
Notification - Interworking with protocols not supporting the notification mechanism or the simple service activation procedure
To verify that the exchange discards the **FAC** (always) and the **CPG** (if received during alerting) and successfully completes the call transfer.

Case a)



1. Assist a call set up from the UNI at SPB on a non-ISUP route.
2. Send FAC with GenNot: "call transfer, active".
3. The call should complete.

Case b)

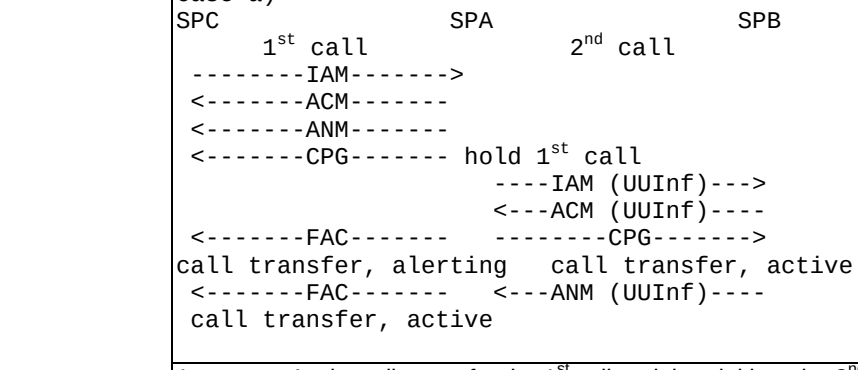


1. Assist a call set up from the UNI at SPB on a non-ISUP route.
2. Send CPG with GenNot: "call transfer, active".
3. The call should complete.

TSS ECT/	TP ISS_V_11_27	ISUP'97 reference 7.6.13.1/ EN 300 356-14 [16]	Selection expression Local	Q.788 [38] reference None

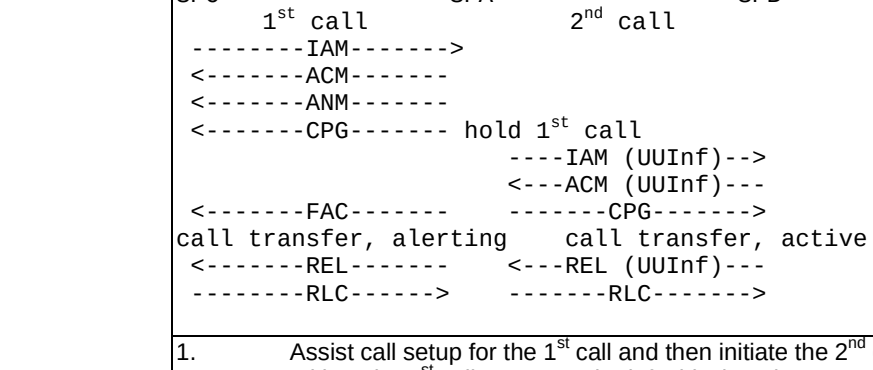
Test purpose
ECT - Interaction with UUS1
To verify that if the ECT is invoked while a remote user is alerted, the originating exchange discards the **user-to-user information** received in the **ANM** or in the **REL** from that remote user.
Pre-test conditions
Arrange the data in the IUT so that the served user subscribes to ECT and UUS1.

Case a)



1. Assist call setup for the 1st call and then initiate the 2nd call (with UUInf) at the UNI A (IUT).
2. Initiate the 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. CPG (progress) with GenNot: "call transfer, active".
5. The 2nd call is answered with UUInf in the ANM, which is to be discarded.
6. Get the verdict from the access side, "pass" if UUInf discarded.

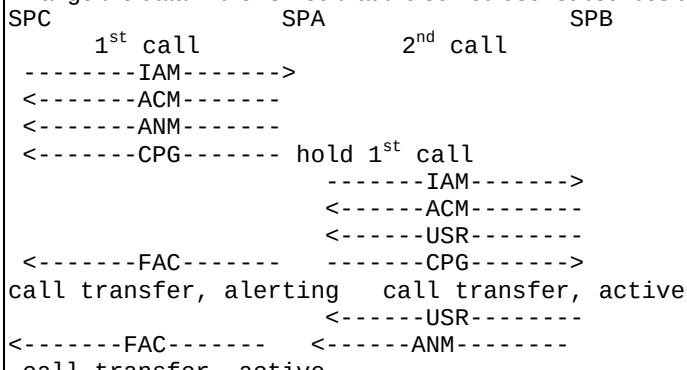
Case b)



1. Assist call setup for the 1st call and then initiate the 2nd call (with UUInf) at the UNI A (IUT).
2. Initiate the 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. CPG (progress) with GenNot:" call transfer, active".
5. The 2nd call is released with UUInf in the REL, which is to be discarded.
6. Get the verdict from the access side, "pass" if UUInf discarded.

TSS ECT/	TP ISS_V_11_28	ISUP'97 reference 7.6.13.2/ EN 300 356-14 [16]	Selection expression Local	Q.788 [38] reference None

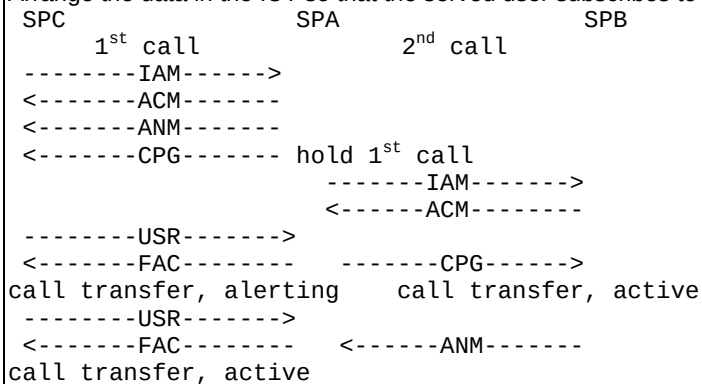
Test purpose
ECT - Interaction with UUS2
To verify that if the ECT is invoked while a remote user is alerted, the exchange discards the **USR** messages received after the call transfer invocation until the **ANM** from that remote user is received.
Pre-test conditions
Arrange the data in the IUT so that the served user subscribes to ECT and UUS2.



1. Assist call setup for the 1st call and then initiate the 2nd call (with UUInf) at the UNI A (IUT).
2. Initiate the 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB) and check the UUS2 request.
4. Accept the requested UUS2 service.
5. Send the 1st USR message. The UUInf should be received on the access side.
6. CPG (progress) with GenNot: "call transfer, active".
7. Send the 2nd USR message. The UUInf should not be received on the access side.
8. Get the verdict from the access side, "pass" if UUInf discarded.

TSS ECT/	TP ISS_V_11_29	ISUP'97 reference 7.6.13.3/ EN 300 356-14 [16]	Selection expression Local	Q.788 [38] reference None

Test purpose
ECT - Interaction with UUS3
To verify that the exchange discards the **USR** messages if received after the call transfer invocation until the call transfer is completed, i.e. either **FAC** is sent to the remote users when both calls are already answered or **ANM** is received from a remote user when one of the calls is alerting.
Pre-test conditions
Arrange the data in the IUT so that the served user subscribes to ECT and UUS3.

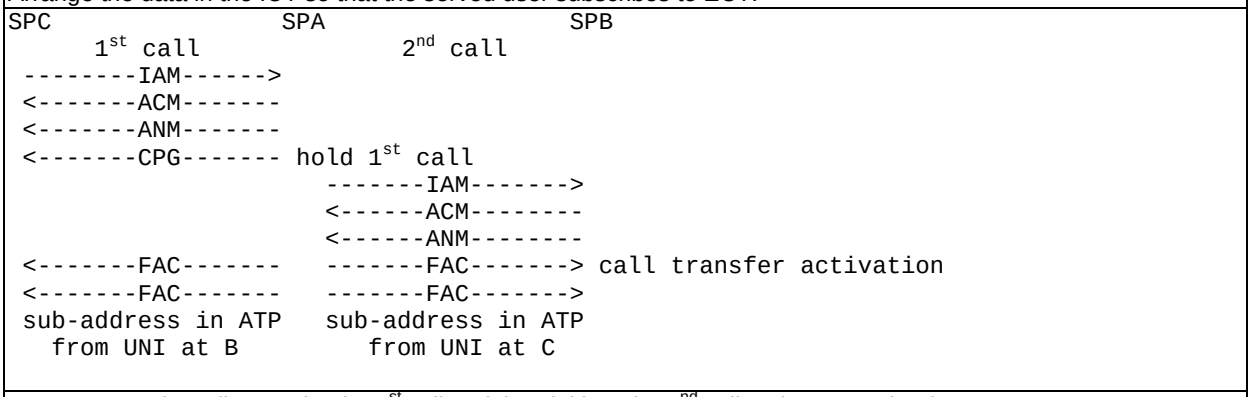


1. Assist call setup for the 1st call and then initiate the 2nd call (with UUInf) at the UNI A (IUT).
2. Initiate the 1st call set up on the left side (SPC).
3. Assist 2nd call set up on the right side (SPB).
4. CPG (progress) with GenNot: "call transfer, active".
5 Get the verdict from the access side, "pass" if UUInf discarded.

NOTE: The first part of the purpose has not been implemented because the time window between call transfer invocation and completion when both calls are answered is too small to permit sending of USR exactly within this interval.

TSS ECT/	TP ISS_V_11_30	ISUP'97 reference Figure 7-7/ EN 300 356-14 [16]	Selection expression Local AND PICS A.2/7	Q.788 [38] reference None

Test purpose
ECT - Interaction with SUB
To verify that if the IUT is able to receive and re-send the sub-address in the **access transport** parameter in the **FAC** message in either direction after activating the call transfer service. These are the calling sub-address for incoming calls and the connected sub-address for outgoing calls.
Pre-test conditions
Arrange the data in the IUT so that the served user subscribes to ECT.



1. Assist call setup for the 1st call and then initiate the 2nd call at the UNI A (IUT).
2. Initiate the 1st call from SPC to the IUT (SPA) using the number TSP_Nb_A on the 1st B-channel.
3. Assist the 2nd call set up from UNI A to the IUT on the 2nd B-channel.
4. Answer the call by specifying a connected number and a connected sub-address.
5. FAC with GenNot: "call transfer, active', ServAct: "call transfer".
6. Receive sub-address from UNI at SPC.

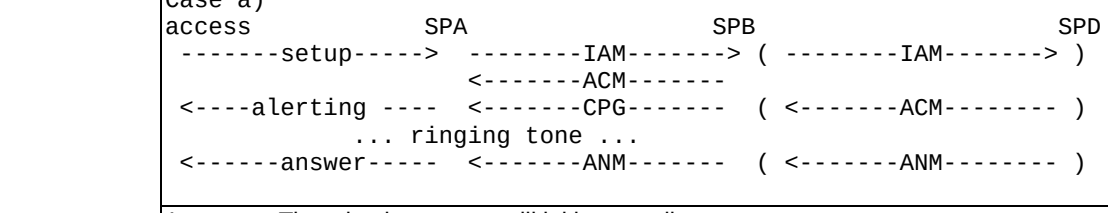
6.2.12 Call diversion (CFB, CFNR, CFU, CD)

CFNR		Call forwarding on no reply	call diversion may occur
	CFNR(A)	CFNR - option A - late release	
	CFNR(B)	CFNR - option B - immediate release	
CD(a)		CD during alerting	
	CD(a, A)	CD during alerting - option A - late release	
	CD(a, B)	CD during alerting - option B - immediate release	
CFB(u, e)		CFB user determined with early ACM	
CD(i, e)		CD immediate response with early ACM	
CFU		Call forwarding unconditional	call is diverting
CFB(n)		CFB network determined	
CFB(u, l)		CFB user determined with late ACM	
CD(i, l)		CD immediate response with late ACM	
CD(i)		CD immediate response	

TSS CDIV/	TP ISS_V_12_1	ISUP'97 reference 2.5.2.1.1/Q.732 [27]	Selection expression OLE	Q.788 [38] reference 2.6.1

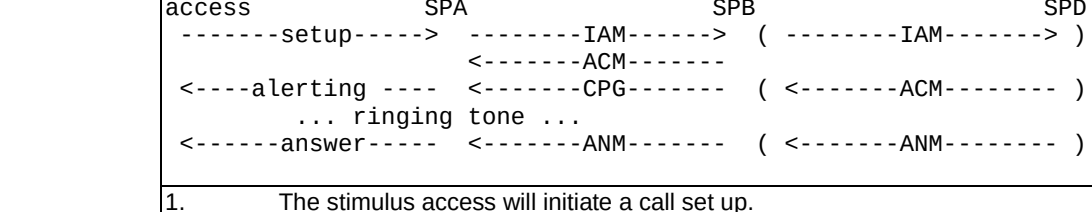
Test purpose
"Call is diverting" indication received in ACM
To verify that a call can be successfully established, if diversion occurs. The **ACM** contains the **generic notification indicator** set to "call is diverting", the **call diversion information** and the **redirection number**.
Applicable redirection reason in the **call diversion information** :
"busy" CFB(n); CFB(u, l)
"unconditional" CFU
"deflection immediate response" CD(i, l)

Case a)



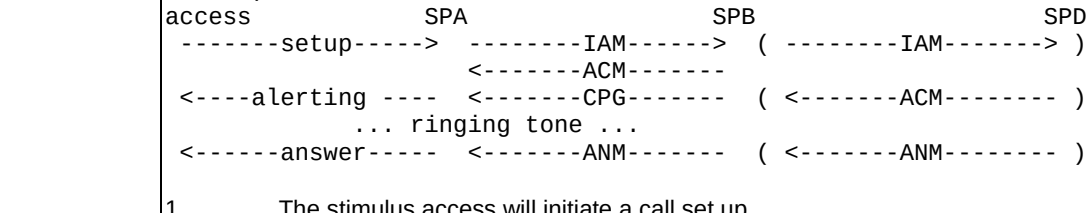
1. The stimulus access will initiate a call set up.
2. Redirection reason is "busy".
3. CPG (alerting) coded as if it has been mapped from ACM including BCI.

Case b)



1. The stimulus access will initiate a call set up.
2. Redirection reason is "'unconditional".
3. CPG (alerting) coded as if it has been mapped from ACM including BCI.

Case c)

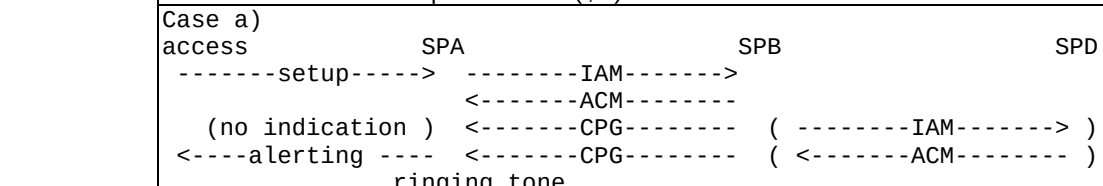


1. The stimulus access will initiate a call set up.
2. Redirection reason is "deflection immediate response".
3. CPG (alerting) coded as if it has been mapped from ACM.

TSS CDIV/	TP ISS_V_12_2	ISUP'97 reference 2.5.2.1.1/Q.732 [27]	Selection expression OLE	Q.788 [38] reference 2.6.3; 2.7.1

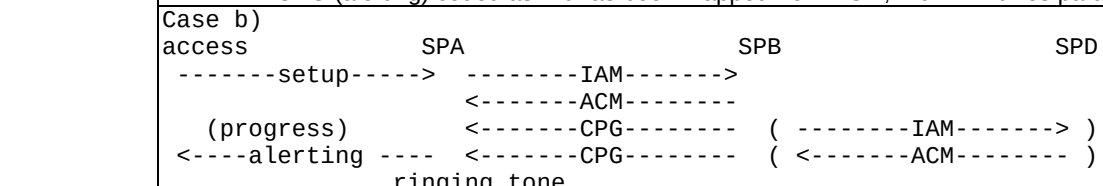
Test purpose
"Call diversion may occur" received in ACM
To verify that a call can be successfully established, if diversion may occur. The **ACM** indicates that "call diversion may occur" in the **optional backward call indicators**. The following **CPG** contains the **generic notification indicator** set to "call is diverting", the **call diversion information** and the **redirection number**, if diversion occurs.
Applicable redirection reason in the **call diversion information** :
"busy" CFB(u, e)
"no reply" CFNR
"deflection during alerting" CD(a)
"deflection immediate response" CD(i, e)

Case a)



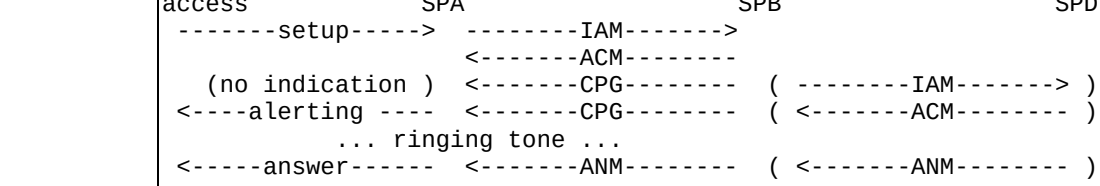
1. The stimulus access will initiate a call set up.
2. 'Call diversion may occur" in Event indicator.
3. 'Call forwarded on busy" in Event indicator and also Call diversion information.
4. CPG (alerting) coded as if it has been mapped from ACM, with RnNbRes parameter.

Case b)



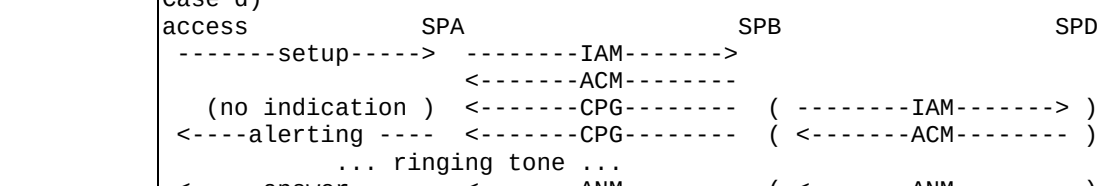
1. The stimulus access will initiate a call set up.
2. 'Subscriber free" in CdPSI & "Call diversion may occur" in OBCI.
3. CPG (Progress) in Event indicator and also Call diversion information ('CFNR'), Generic notification, and redirection Number.
4. CPG (alerting) coded as if it has been mapped from ACM, with RnNbRes parameter, and including BCI.

Case c)



1. The stimulus access will initiate a call set up.
2. 'Subscriber free" in CdPSI & "Call diversion may occur" in Event indicator.
3. CPG(Progress) in Event indicator and also Call diversion information, generic notification, and redirection number.
4. CPG(alerting) coded as if it has been mapped from ACM, with RnNbRes parameter, and including BCI.

Case d)



1. The stimulus access will initiate a call set up.
2. 'Subscriber free" in CdPSI & "Call diversion may occur" in Event indicator.
3. 'Deflection immediate response" in Event indicator and also Call diversion information.
4. CPG (alerting) coded as if it has been mapped from ACM, with RnNbRes parameter.

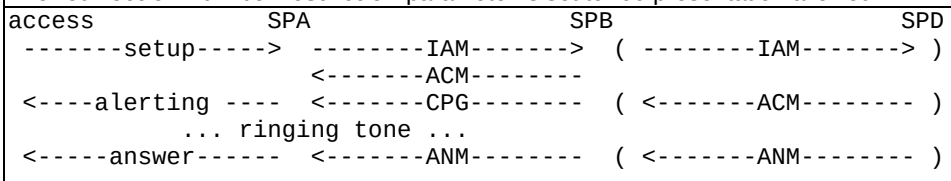
TSS CDIV/	TP ISS_V_12_3	ISUP'97 reference 2.4.2; Table 2-1/Q.732 [27]	Selection expression OLE	Q.788 [38] reference None

Test purpose

Redirection number - presentation allowed - according to the notification subscription option

To verify that the originating exchange makes the **redirection number** available to the calling access signalling system, if the notification subscription option of the **call diversion information** is coded "010 presentation allowed with redirection number".

The **redirection number restriction** parameter is set to "00 presentation allowed".



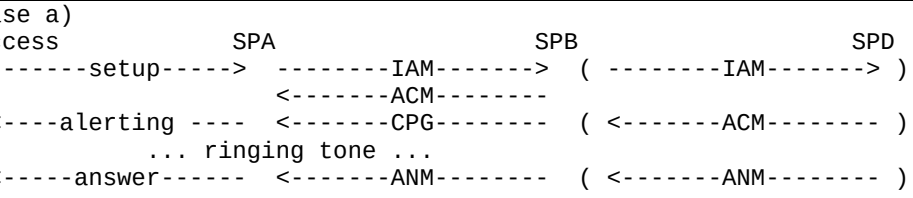
1. The stimulus access will initiate a call set up. The verdict will be set to pass if the Redirection number is presented on the access.
2. NSO is "presentation allowed with redirection number" (implicit) and RnReas = CFU.
3. Redirection number restriction parameter "presentation allowed" (implicit).

NOTE: CFU is used as redirection reason, but other reasons are also applicable.

TSS CDIV/	TP ISS_V_12_4	ISUP'97 reference 2.4.2; Table 2-1/Q.732 [27]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Redirection number - presentation restricted - according to the notification subscription option
To verify that the originating exchange does not make the **redirection number** available to the calling access signalling system, if the notification subscription option of the **call diversion information** is coded "001 presentation not allowed", "011 presentation allowed without redirection number" or "000 unknown".
The **redirection number restriction** parameter is set to "00 presentation allowed".

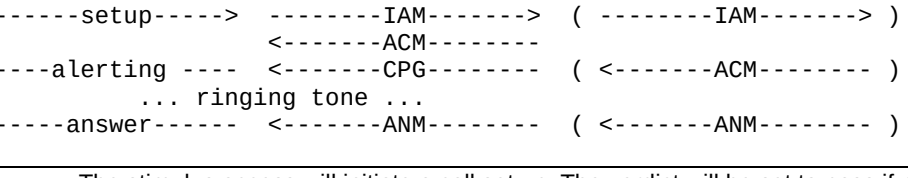
Case a)



1. The stimulus access will initiate a call set up. The verdict will be set to pass if no Redirection number is presented on the access.
2. NSO is "presentation allowed with redirection number" (implicit) and RnReas = CFU.
3. Redirection number restriction parameter "presentation allowed" (implicit/default).

NOTE 1: CFU is used as redirection reason, but other reasons are also applicable.

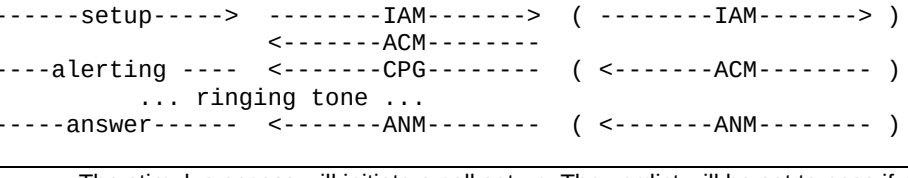
Case b)



1. The stimulus access will initiate a call set up. The verdict will be set to pass if no Redirection number is presented on the access.
2. NSO is "presentation allowed without redirection number" and RnReas = CFU.
3. Redirection number restriction parameter "presentation allowed" (implicit).

NOTE 2: CFU is used as redirection reason, but other reasons are also applicable.

Case c)

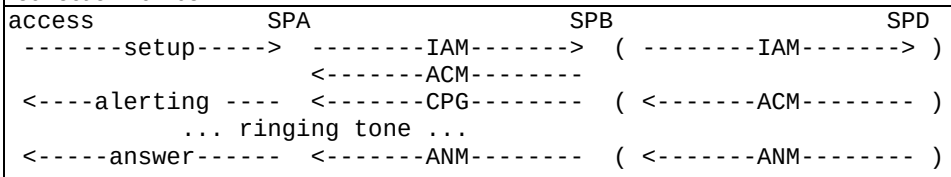


1. The stimulus access will initiate a call set up. The verdict will be set to pass if no Redirection number is presented on the access.
2. NSO is "unknown" and RnReas = CFU.
3. Redirection number restriction parameter "presentation allowed" (implicit/default).

NOTE 3: CFU is used as redirection reason, but other reasons are also applicable.

TSS CDIV/	TP ISS_V_12_5	ISUP'97 reference 2.4.2; Table 2-1/Q.732 [27]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Redirection number - presentation restricted - according to redirection number restriction parameter
To verify that the originating exchange does not make the **redirection number** available to the calling access signalling system, if the **redirection number restriction** parameter indicates "01 Presentation restricted".
The notification subscription option of the **call diversion information** is coded "010 Presentation allowed with redirection number".

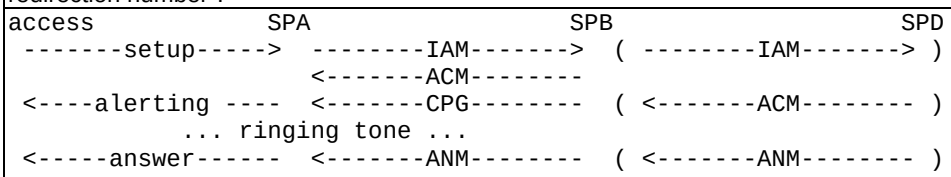


1. The stimulus access will initiate a call set up. The verdict will be set to pass if no Redirection number is presented on the access.
2. NSO is "presentation allowed with redirection number" (implicit)" and RnReas = CFU.
3. The Redirection number restriction parameter is set to "presentation restricted".

NOTE: CFU is used as redirection reason, but other reasons are also applicable.

TSS CDIV/	TP ISS_I_12_6	ISUP'97 reference 2.4.2; Table 2-1/Q.732 [27]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Redirection number - presentation restricted - no redirection number restriction parameter received
To verify that the originating exchange does not make the **redirection number** available to the calling access signalling system, if no **redirection number restriction** parameter is received.
The notification subscription option of the **call diversion information** is coded "010 Presentation allowed with redirection number".



1. The stimulus access will initiate a call set up. The verdict will be set to pass if no Redirection number is presented on the access.
2. NSO is "presentation allowed with redirection number" (implicit) and RnReas = CFU.
3. CPG (alerting) without the redirection number restriction parameter is sent to the IUT.

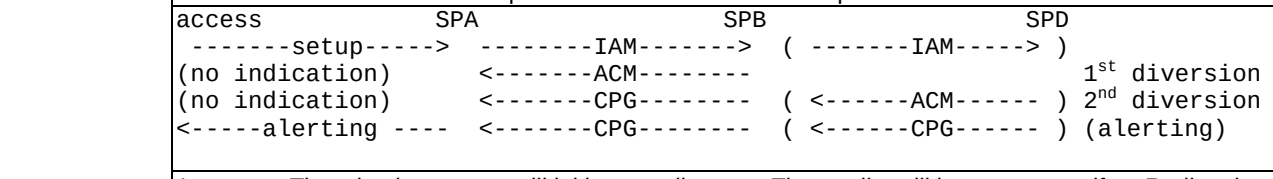
TSS CDIV/	TP ISS_I_12_7	ISUP'97 reference 2.4.2/Q.732 [27]	Selection expression OLE	Q.788 [38] reference None

Test purpose

Multiple diversions - redirection number not send by the last diversion

To verify that the originating exchange does not make any **redirection number** available to the calling access signalling system, if the last diverting exchange does not send one.

NOTE: The first diverting exchange sends the **redirection number** and allows for its presentation. The second (last) diversion allows for the presentation of the **redirection number**, but does not send it, i.e. only **call diversion information** is present in the message and the redirection number is missing. The **redirection number restriction** parameter is also received as "presentation allowed".



1. The stimulus access will initiate a call set up. The verdict will be set to pass if no Redirection number is presented on the access.
2. ACM no indication with NSO: "Presentation allowed with number', RnReas = CFU and 1st Redirection number.
3. CPG progress with NSO: "Presentation allowed with number', RnReas = CFU and NO 2nd Redirection number.
4. CPG alerting with RnNbRes parameter for the 2nd Redirection number.

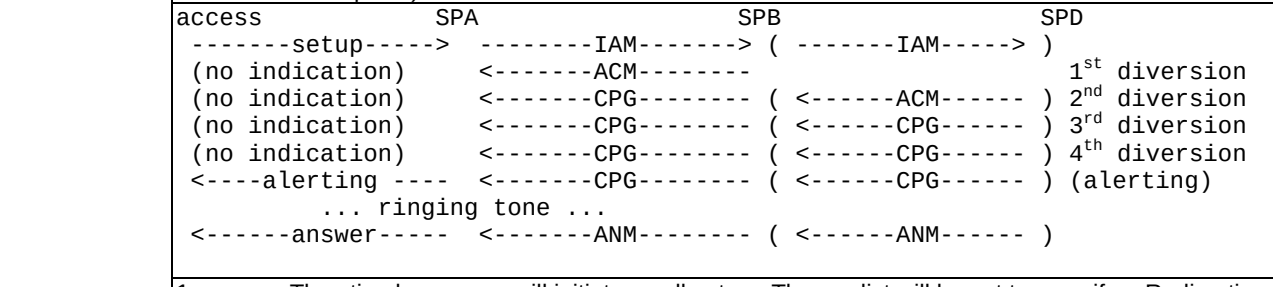
TSS CDIV/	TP ISS_I_12_8	ISUP'97 reference 2.4.2/Q.732 [27]	Selection expression OLE	Q.788 [38] reference None

Test purpose

Multiple diversions - redirection number - presentation according to the most restrictive notification subscription option

To verify that the originating exchange handles the presentation of the **redirection number** according to the contents of the most restrictive notification subscription option of the **call diversion information**, if the forwarded-to user allows presentation of the number ("presentation allowed" in the **redirection number restriction** parameter).

NOTE: Several messages each containing the **call diversion information** are received, as if multiple forwarding have occurred (from option B - immediate release - diverting exchanges, so no collecting of information takes place).



1. The stimulus access will initiate a call set up. The verdict will be set to pass if no Redirection number is presented on the access.
2. Redirection number restriction parameter "presentation allowed" (implicit/default).

NOTE: CFU is used as redirection reason, but other reasons are also applicable.

TSS CDIV/	TP ISS_V_12_9	ISUP'97 reference 2.5.2.2.1; 2.5.2.5.1.2 d)/Q.732 [27]	Selection expression IntermE	Q.788 [38] reference None

Test purpose

Notification procedures for a diverting call - before the diverting exchange

To verify that the IUT can successfully pass on in the backward direction (on the leg before the diversion) all the diversion information from the diverting exchange.

It has to be checked that the following signalling information is passed on:

optional backward call indicators with setting "call diversion may occur" for CFNR, CD(a), CFB(u, e) and CD(i, e)

generic notification indicator

call diversion information

redirection number (note - Altered in gateways)

redirection number restriction parameter

The following messages can be tested for CFU, CFB(n), CFB(u, l), CD(i, l):

ACM with **generic notification indicator**, **call diversion information** and **redirection number**

CPG alerting (or **ANM** or **CON**) with **redirection number restriction** parameter.

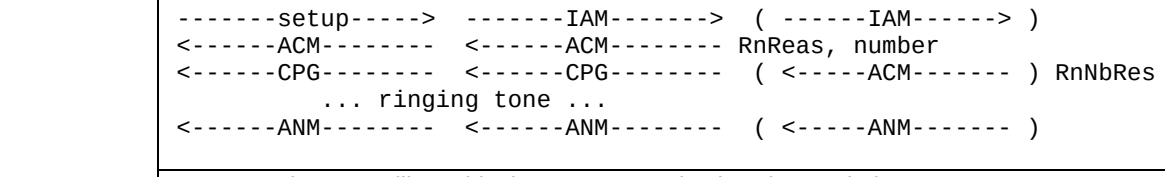
NOTE: The following messages can be tested for CFNR, CD(a), CFB(u, e) and CD(i, e):

ACM with **optional backward call indicators** with "call diversion may occur";

CPG with **generic notification indicator**, **call diversion information** and **redirection number;**

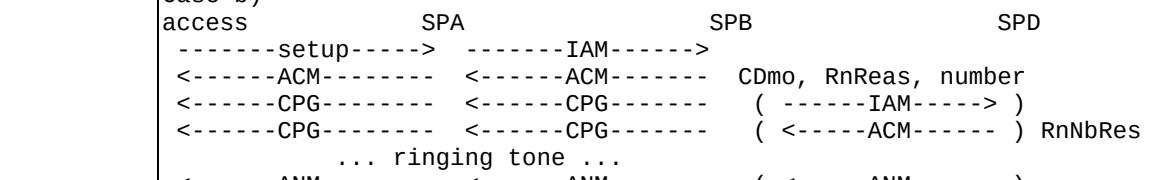
CPG alerting (or **ANM** or **CON**) with **redirection number restriction** parameter.

Case a)



1. The PTC will provide the necessary stimulus, the test is for RnReas = CFU.
2. ACM (no indication) with CDInf, GenNot = "call is diverting" and the RnNb.
3. CPG (alerting) with RnNbRes - coded as if it has been mapped from ACM; including BCI.

Case b)



1. The PTC will provide the necessary stimulus, the test is for RnReas = CFNR.
2. ACM with optional backward call indicator "call diversion may occur
3. CPG (progress) with CDInf, GenNot = "call is diverting" and the RnNb.
4. CPG (alerting) with RnNbRes - coded as if it has been mapped from ACM; including BCI.

TSS CDIV/	TP ISS_V_12_10	ISUP'97 reference 2.5.2.2.1/Q.732 [27]	Selection expression IntermE	Q.788 [38] reference None

Test purpose
Notification procedures for a diverting call - after the diverting exchange
To verify that the IUT can successfully pass on in both directions (on the leg after the diversion) all the diversion information from the diverting exchange.
It has to be checked that the following signalling information is passed on in the forward direction:
redirecting number (note: altered in Gateways)
original called number (note: altered in Gateways)
redirection information
It has to be checked that the following signalling information is passed on in the backward direction:
redirection number restriction parameter (in ACM /CPG /ANM /CON)

```
SPC                SPA                  SPB                  SPD
 --------IAM------>  --------IAM------->  with RnInf, OriCdNb, RgNb
 <-------ACM-------  <-------ACM-------- RnNbRes
           ... ringing tone ...
 <------answer-----  <-------ANM--------
```

1. The stimulus ISUP will initiate a call set up with the expected signalling information.
2. On the forwarding leg the RnNbRes from user with the number TSP_Nb_B is returned.
3. The Redirection number restriction parameter is set to "presentation allowed" by default.

TSS CDIV/	TP ISS_I_12_11	ISUP'97 reference 2.5.2.3/Q.732 [27] ; 3.5.2.3/Q.731 [25]	Selection expression OutIE	Q.788 [38] reference None

Test purpose
Original called number in the outgoing international gateway
To verify that the outgoing international gateway checks and manipulates the **original called number** according to the procedures as defined for CLIP.
Applicable tests:
Discarding the **original called number** if case of bilateral agreements (PICS A.15/11)
Discarding the **original called number**, if the address is marked not available
Converting the **original called number** to international format with transparent transferral of screening indicator and address presentation restricted indicator
Discarding an incomplete **original called number**

```
Case a)
SPC                SPA                  SPB
 --------IAM------>  --------IAM------->
```

1. The PTC will send an IAM with OriCdNb.

```
Case b)
SPC                SPA                  SPB
 --------IAM------>  --------IAM------->
```

1. The PTC will send an IAM with an "address not available" OriCdNb.

```
Case c)
SPC                SPA                  SPB
 --------IAM------>  --------IAM------->
```

1. The PTC will send an IAM with a national (significant) OriCdNb.

TSS CDIV/	TP ISS_V_12_12	ISUP'97 reference 2.5.2.3/Q.732 [27] ; 3.5.2.3/Q.731 [25]	Selection expression OutIE	Q.788 [38] reference None

Test purpose
Redirecting number in the outgoing international gateway
To verify that the outgoing international gateway checks and manipulates the **redirecting numbe**r according to the procedures as defined for CLIP.
Applicable tests:
Discarding the **redirecting number** if case of bilateral agreements (PICS A.15/12)
Discarding the **redirecting number**, if the address is marked not available
Converting the **redirecting number** to international format with transparent transferral of screening indicator and address presentation restricted indicator
Discarding an incomplete **redirecting number**

```
Case a)
SPC                SPA                  SPB
 --------IAM------>  --------IAM------->
```

1. The PTC will send an IAM with RgNb.

```
Case b)
SPC                SPA                  SPB
 --------IAM------>  --------IAM------->
```

1. The PTC will send an IAM with an "address not available" RgNb.

```
Case c)
SPC                SPA                  SPB
 --------IAM------>  --------IAM------->
```

1. The PTC will send an IAM with a national significant RgNb.

TSS CDIV/	TP ISS_V_12_13	ISUP'97 reference 2.5.2.3/Q.732 [27]	Selection expression OutIE	Q.788 [38] reference None

Test purpose
Redirection number in the outgoing international gateway.
To verify that the outgoing international gateway checks and manipulates the **redirection numbe**r according to the procedures defined for COLP.
Tests applicable:
Converting the **redirection number** to national format, if necessary (own country code)
Adding a prefix to an international **redirection number** (PICS A.15/14 - national option @)

```
Case a)
SPC                SPA                   SPB                    SPD
 --------IAM------>  --------IAM------->  ( --------IAM-------> )
 <-------ACM-------  <-------ACM-------- RnReas, number
 <-------CPG-------  <-------CPG--------  ( <------ACM--------- ) RnNbRes
           ... ringing tone ...
 <------ANM--------  <-------ANM--------  ( <-------ANM-------- )
```

1. The PTC will provide the necessary stimulus.
2. ACM with CDInf, GenNot = "call is diverting" and an international RnNb: TSP_Nb_D with own CC.
3. CPG (alerting) with RnNbRes - coded as if it has been mapped from ACM including BCI.

```
Case b)
SPC                SPA                   SPB                    SPD
 --------IAM------>  --------IAM------->  ( --------IAM-------> )
 <-------ACM-------  <-------ACM-------- RnReas, number
 <-------CPG-------  <-------CPG--------  ( <------ACM--------- ) RnNbRes
           ... ringing tone ...
 <------ANM--------  <-------ANM--------  ( <-------ANM-------- )
```

1. The PTC will provide the necessary stimulus.
2. ACM with CDInf, GenNot = "call is diverting" and an international RnNb: TSP_Nb_D with foreign country code.
3. CPG (alerting) with RnNbRes - coded as if it has been mapped from ACM including BCI.

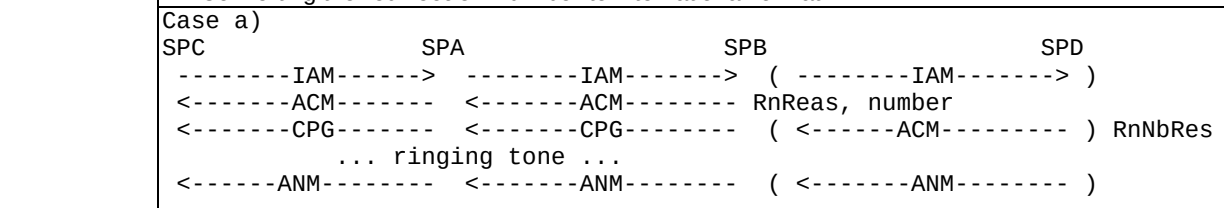
TSS CDIV/	TP ISS_V_12_14	ISUP'97 reference 2.5.2.4/Q.732 [27] ; 3.5.2.4/Q.731 [25]	Selection expression IncIE	Q.788 [38] reference None
Test purpose *Original called number in the incoming international gateway* To verify that the incoming international gateway checks and manipulates the original called number according to the procedures as defined for CLIP. Applicable tests: Converting the original called number to national format, if necessary (own country code) Adding a prefix to an international original called number (PICS A.15/15 - national option @)				
Case a) SPC International SPA National SPB ----------IAM--------> ---------IAM-------->				
1. The stimulus ISUP will initiate a call set up with the expected signalling information. 2. The received IAM should contain an OriCdNb coded as a national (significant) number.				
Case b) SPC International SPA National SPB ----------IAM--------> ---------IAM-------->				
1. The stimulus ISUP will initiate a call set up with the expected signalling information. 2. The received IAM should contain an OriCdNb with prefix.				

TSS CDIV/	TP ISS_V_12_15	ISUP'97 reference 2.5.2.4/Q.732 [27] ; 3.5.2.4/Q.731 [25]	Selection expression IncIE	Q.788 [38] reference None
Test purpose *Redirecting number in the incoming international gateway.* To verify that the incoming international gateway checks and manipulates the **redirecting numbe**r according to the procedures as defined for CLIP. Applicable tests: Converting the **redirecting number** to national format, if necessary (own country code) Adding a prefix to an international **redirecting number** (PICS A.15/16 - national option @)				
Case a) SPC SPA SPB --------IAM-------> --------IAM------->				
1. The PTC will send an IAM with RgNb.				
Case b) SPC SPA SPB --------IAM-------> --------IAM------->				
1. The PTC will send an IAM with foreign CC RgNb.				
Case c) SPC SPA SPB --------IAM-------> --------IAM------->				
1. The PTC will send an IAM with RgNb.				

TSS CDIV/	TP ISS_V_12_16	ISUP'97 reference 2.5.2.4/Q.732 [27]	Selection expression IncIE	Q.788 [38] reference None

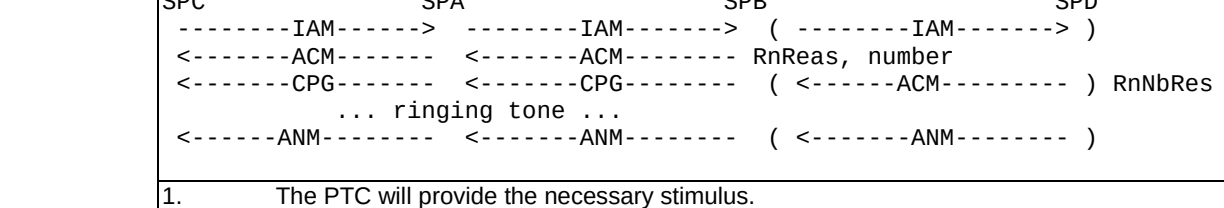
Test purpose
Redirection number in the incoming international gateway.
To verify that the incoming international gateway checks and manipulates the **redirection numbe**r according to the procedures defined for COLP.
Tests applicable:
Discarding the **redirection number** in case of bilateral agreements (PICS A.15/13)
Converting the **redirection number** to international format

Case a)



1. The PTC will provide the necessary stimulus.
2. ACM with CDInf, GenNot = "call is diverting" and an national RnNb.
3. CPG (alerting) with RnNbRes - coded as if it has been mapped from ACM including BCI.

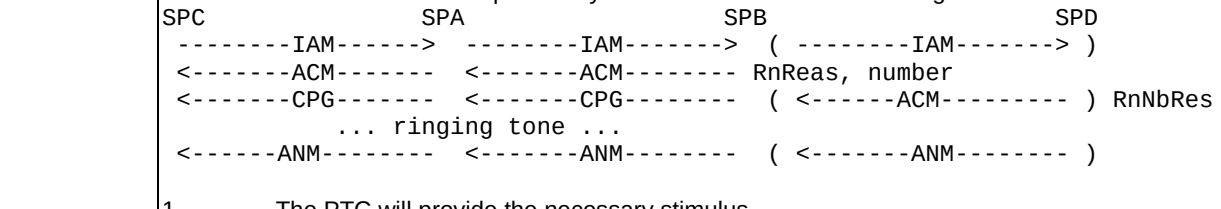
Case b)



1. The PTC will provide the necessary stimulus.
2. ACM with CDInf, GenNot = "call is diverting" and a national RnNb.
3. CPG (alerting) with RnNbRes - coded as if it has been mapped from ACM including BCI.

TSS CDIV/	TP ISS_V_12_17	ISUP'97 reference 2.5.2.4/Q.732 [27] 3.5.2.4/Q.731 [25]	Selection expression IncIE AND PICS A.15/13	Q.788 [38] reference None

Test purpose
Redirection number restriction parameter in the incoming international gateway.
To verify that the incoming international gateway removes the **redirection number restriction parameter** if the **redirection number** has been previously discarded in case of bilateral agreements.



1. The PTC will provide the necessary stimulus.
2. ACM with CDInf, GenNot = "call is diverting" and a national RnNb.
3. CPG (alerting) with RnNbRes - coded as if it has been mapped from ACM including BCI.

TSS CDIV/	TP ISS_V_12_18	ISUP'97 reference 2.5.2.5.1.1/Q.732 [27]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Completion of diverted call by the diverted-to exchange
To verify that the IUT accepts and can successfully establish a diverted call.

```
SPC                SPA                      SPB                    SPD
<------setup--------  <-------IAM-------- ( <------IAM-------- )
                       RnReas, number     ( -------ACM-------> )
-----alerting------>  -------ACM--------> ( -------CPG-------> ) RnNbRes
```

1. The PTC will provide the necessary stimulus.
2. 2 diversions simulated in redirection counter; Numbers sent: are OriCdNb and RgNb.
3. ACM with CDInf, GenNot = "call is diverting" and a national RnNb.
4. CPG (alerting) with RnNbRes - coded as if it has been mapped from ACM including BCI.

TSS CDIV/	TP ISS_V_12_19	ISUP'97 reference 2.5.2.5.1.1/Q.732 [27]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Setting of redirection number restriction parameter at the diverted-to exchange (pres. allowed)
To verify that the IUT includes the **redirection number restriction** indicator in the **ACM**, **CPG**, **ANM** or **CON** set to "presentation allowed" (COLR not activated).

```
SPC                  SPA                     SPB
<------ setup --------  <------IAM---------  (Diverted call)
 ------alerting------>  -------ACM--------> RnNbRes  (1)
:
or
 ------alerting------>  -------ACM-------->
:                      -------CPG--------> RnNbRes  (2)
or
 ------alerting------>  -------ACM-------->
 -------connect------>  -------ANM--------> RnNbRes  (3)
:
or
 -------connect------>  -------CON--------> RnNbRes  (4)
```

1.-4. Pass when the redirection number restriction parameter with the coding "00 - Presentation allowed"' is received in one of the allowed messages.
5. Check the ringing tone from SPA to SPB.

TSS CDIV/	TP ISS_V_12_20	ISUP'97 reference 2.5.2.5.1.1/Q.732 [27]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Setting the redirection number restriction indicator at the diverted-to exchange (pres. restricted)
To verify that the IUT includes the **redirection number restriction** indicator in the **ACM**, **CPG**, **ANM** or **CON** set to "presentation restricted" (COLR activated).
Pre-test conditions
Arrange the data in the IUT so that the diverted-to user subscribes to the COLR supplementary service.

```
access                SPA                   SPB
<--------setup--------  <------IAM---------  (Diverted call)
-------alerting------>  -------ACM--------> RnNbRes  (2.)
:
or
 ------alerting------>  -------ACM-------->
:                      -------CPG--------> RnNbRes  (3.)
or
 ------alerting------>  -------ACM-------->
 -------connect------>  -------ANM--------> RnNbRes  (4.)
:
or
 -------connect------>  -------CON--------> RnNbRes  (5.)
```

1. The left access PTC will assist the call set-up with the expected parameters.
2.-5. Pass when the redirection number restriction parameter with the coding "01 - Presentation restricted"' is received in one of the allowed messages.
6. Check the ringing tone from SPA to SPB.

TSS CDIV/	TP ISS_V_12_21	ISUP'97 reference 2.5.2.5.1.2 b) 1)/Q.732 [27]	Selection expression DLE AND PICS A.15/2	Q.788 [38] reference None

Test purpose
Setting the redirection counter in the diverting exchange - first diversion
To verify that the IUT can successfully divert a call which has not been diverted before and set the redirection counter to the correct value.
The call is diverted directly to another exchange; the redirection counter should be set to 1.
Pre-test conditions
Arrange the data in the IUT so that called user has activated diversion to an external exchange.

```
SPC               SPA (IUT)           SPB
(No diversions)            (One diversion)
 --------IAM-------> --------IAM------->
```

1. The PTC will send an IAM with a national (significant) OriCdNb.

TSS CDIV/	TP ISS_V_12_22	ISUP'97 reference 2.5.2.5.1.2 b) 1)/Q.732 [27]	Selection expression DLE AND PICS A.15/2	Q.788 [38] reference None

Test purpose
Setting of redirection counter in the diverting exchange - multiple local diversions
To verify that the IUT can successfully divert a call which has not been diverted before and set the redirection counter to the correct value.
The call is diverted N<=5 times; the redirection counter should be set to N. (e.g. for the pre-test condition the call is diverted twice: once to the same exchange and then to an external exchange, N=2)

```
SPC               SPA (IUT)           SPB
(No diversions)     (one local diversion) (Two diversions)
 --------IAM-------> --------IAM------->
```

1. The PTC will send an IAM with a national (significant) OriCdNb.
2. RnCnt = 2 = "010'B expected.

TSS CDIV/	TP ISS_V_12_23	ISUP'97 reference 2.5.2.5.1.2 b) 1)/Q.732 [27]	Selection expression DLE AND PICS A.15/2	Q.788 [38] reference None
Test purpose *Updating of redirection counter in the diverting exchange* To verify that the IUT can successfully divert a call which has already been diverted and increment the redirection counter.				
NOTE: The call has been diverted 1 - 4 times.				
Pre-test conditions Arrange the data in the IUT so that called user has activated diversion to an external exchange				

TSS CDIV/	TP ISS_V_12_24	ISUP'97 reference 2.5.2.5.1.2 b) 2)/Q.732 [27]	Selection expression DLE	Q.788 [38] reference None
Test purpose *Original called number generated by the diverting exchange* Verify that the IUT sets the address presentation restricted indicator of the **original called number** according to the "served user releases his/her number to the diverted-to user" option. The redirecting indicator in the **redirection information** shall be set to "011 Call diverted". Pre-test conditions Arrange the data in the IUT so that called user has activated diversion to an external exchange.				
SPC SPA (IUT) SPB (Subscription option release information) --------IAM-------> --------IAM-------> RnInf.RgInd=’011" & OriCdNb.APRI=’00’				
1. The PTC will send an IAM with a national (significant) OriCdNb.				

TSS CDIV/	TP ISS_V_12_25	ISUP'97 reference 2.5.2.5.1.2 b) 4)/Q.732 [27]	Selection expression DLE	Q.788 [38] reference None
Test purpose *Redirecting number generated by the diverting exchange* Verify that the IUT sets the address presentation restricted indicator of the **redirecting number** according to the "served user releases his/her number to the diverted-to user" option. The redirecting indicator in the **redirection information** shall be set to "011 Call diverted". Pre-test conditions Arrange the data in the IUT so that called user has activated diversion to an external exchange.				
SPC SPA (IUT) SPB (Subscription option = Do not release information) --------IAM-------> --------IAM-------> RnInf.RgInd=’100" & RgNb.APRI = "00’				
1. The PTC will send an IAM with a national (significant) OriCdNb.				

TSS CDIV/	TP ISS_V_12_26	ISUP'97 reference 2.5.2.5.1.2 b) 5)/Q.732 [27]	Selection expression DLE	Q.788 [38] reference None

Test purpose
ISDN user part preference indicator in the diverting exchange
To verify that the IUT can successfully divert a call and that ISDN user part preference indicator received in the **forward call indicators** with the value "ISDN user part ...
... not required all the way" shall be changed to "ISDN user part preferred all the way"
... preferred all the way" shall be left unchanged
... required all the way" shall be left unchanged.
Pre-test conditions
Arrange the data in the IUT so that called user has activated diversion.

```
Case a)
SPC              SPA (IUT)             SPB
  ISUP not required      ISUP preferred
 --------IAM-------> --------IAM------->
```

1. The PTC will send a call with the expected stimulus to the diverting exchange.
2. The ISUP preference indicator is checked.

```
Case b)
SPC              SPA (IUT)            SPB
 ISUP preferred          ISUP preferred
 --------IAM-------> --------IAM------->
```

1. The PTC will send a call with the expected stimulus to the diverting exchange.
2. The ISUP preference indicator is checked.

```
Case c)
SPC              SPA (IUT)             SPB
 ISUP required           ISUP required
 --------IAM-------> --------IAM------->
```

1. The PTC will send a call with the expected stimulus to the diverting exchange.
2. The ISUP preference indicator is checked.

TSS CDIV/	TP ISS_V_12_27	ISUP'97 reference 2.5.2.5.1.2 c) ii); iii)/Q.732 [27]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Call diversion may occur in the diverting exchange
To verify that the IUT includes an **optional backward call indicator** with the indication "call diversion may occur" in the **ACM** in case of CFNR, CD(a), CFB(u, e) and CD(i, e)
Pre-test conditions
Arrange the data in the IUT so that called user has activated the appropriate diversion service to an external exchange.

```
SPC               SPA                SPB
--------IAM------->
<-------ACM-------  CDmo
<-------CPG------- --------IAM------->
<-------CPG------- <-------ACM--------
           ... ringing tone ...
<-------ANM------- <-------ANM--------
```

1. The stimulus ISUP will initiate a call set up to diverting user at IUT and expect to receive the indication "call diversion may occur".
2. Verdict is set by checking status on left PTC.

TSS CDIV/	TP ISS_V_12_28	ISUP'97 reference 2.5.2.5.1.2 c) ii); Table 2-2/Q.732 [27]	Selection expression DLE AND PICS A.16/5	Q.788 [38] reference None

Test purpose
Served user answers the call before T_{CFNR} expiry
To verify that a call may be answered by the served user and that no signalling occurs on the diverted-to user leg if the call is answered before timeout of Timer T_{CFNR}, in case of CFNR
Pre-test conditions
Arrange the data in the IUT so that called user has activated the CFNR service.

```
Case a)
SPC              SPA                  SPB
--------IAM------>
<-------ACM-------  CDmo
<-------ANM-------
```

1. The stimulus ISUP will initiate a call set up to diverting user at IUT and expect to receive the indication "call diversion may occur".
2. Pass if no signalling is observed on the AB link.

```
Case b)
SPC              SPA                  SPB
--------IAM------>
<-------ACM-------  CDmo
                              TCFNR expiry
<-------CPG-------  --------IAM------->
<-------CPG-------  <-------ACM--------
          ... ringing tone ...
<------answer-----  <-------ANM--------
```

1. The stimulus ISUP will initiate a call set up to diverting user at IUT and expect to receive the indication "call diversion may occur".
2. Window for receiving the forwarding call is created.
3. Pass if IAM is received inside window.

TSS CDIV/	TP ISS_V_12_29	ISUP'97 reference 2.5.2.5.1.2 c) i); ii); iii)/Q.732 [27]	Selection expression DLE AND NOT PICS A.16/1	Q.788 [38] reference None

Test purpose
Immediate through-connection in the diverting exchange
To verify that the IUT can successfully divert a call and that the incoming circuit is connected to the chosen outgoing circuit immediately, in case of CFU, CFB, CD(i), CFNR(B) and CD(a, B).
Pre-test conditions
Arrange the data in the IUT so that called user has activated the appropriate diversion service to an external exchange.

```
 SPC              SPA                  SPB
--------IAM------>
<-ACM{CDmo/NoInd}-  --------IAM-------->  (with RnInf, OriCdNb, RgNb)
     ... Check both way communication ...
<-------CPG-------  <-------ACM------- RnNbRes
            ... ringing tone ...
<-------ANM-------  <-------ANM-------
```

1. The stimulus ISUP will initiate a call set up with the expected signalling information.
2. The incoming circuit should be connected to outgoing circuit in both directions immediately.

TSS CDIV/	TP ISS_V_12_30	ISUP'97 reference 2.5.2.5.1.2 c) ii)/Q.732 [27]	Selection expression DLE AND PICS A.16/1 (option A)	Q.788 [38] reference None

Test purpose

Through-connection backwards upon alerting and forwards upon answer in the diverting exchange

To verify that the IUT through-connects in the backward direction (incoming circuit) after receiving the alerting indication and in the forward direction (outgoing circuit) after receiving the answer (connect) indication, in case of CFNR(A) and CD(a, A).

NOTE: The IUT can through-connect in both directions after receiving the alerting indication.

Pre-test conditions

Arrange the data in the IUT so that called user has activated the appropriate diversion service to an external exchange.

```
SPC                 SPA                 SPB
----------IAM------->
<--ACM {CDmo/NoInd}--  --------IAM------->
              Check that there is no through-connection
<--------CPG---------  <-------ACM-------- (RnNbRes)
              Check that there is through-connection backward direction
       (e.g. .. ringing tone ...)
 <-------ANM---------  <-------ANM--------
              Check that there is through-connection in both directions
```

1. The stimulus ISUP will initiate a call set up with the expected signalling information.
2. Will disrupt the call handling and cause failure if received unexpectedly at left PTC.
3. Steps checks backward through-connection in backward direction before ANM and two-way communication after ANM.

TSS CDIV/	TP ISS_V_12_31	ISUP'97 reference 2.5.2.5.1.2 c) ii)/Q.732 [27]	Selection expression DLE AND PICS A.16/1 (option A)	Q.788 [38] reference None

Test purpose

Served user answers before receipt of alerting indication from diverted-to exchange

To verify that the IUT allows the served user to answer the call after the **IAM** has been sent to the diverted-to exchange, in case of CFNR(A) and CD(a, A). The served user shall be allowed to answer the call after **ACM** (no indication) has been received and the connection towards the diverted-to exchange shall be released.

Pre-test conditions

Arrange the data in the IUT so that called user has activated CFNR(A) or CD(a, A) to an external exchange.

```
SPC               SPA                 SPB
--------IAM------>
<-------ACM-------  CDmo
                    TCFNR expiry
                    --------IAM------->
                    <---ACM (NoInd)----
 Served user answers
<------ANM-------   --------REL------->
:                   <------ RLC--------
```

1. The stimulus ISUP will initiate a call set up to diverting user at IUT .
2. The stimulus access will assist the call set up at the served user side.
3. ACM with no indication as if another diversion may occur in order to give time to the user at UNI at SPA to answer the call.
4. Call on forwarding leg is released.
5. Successful call set up carried out by the PTC.

TSS CDIV/	TP ISS_V_12_32	ISUP'97 reference 2.5.2.5.1.2 c) ii)/Q.732 [27]	Selection expression DLE AND PICS A.16/1 (option A)	Q.788 [38] reference 2.7.4; 2.9.7

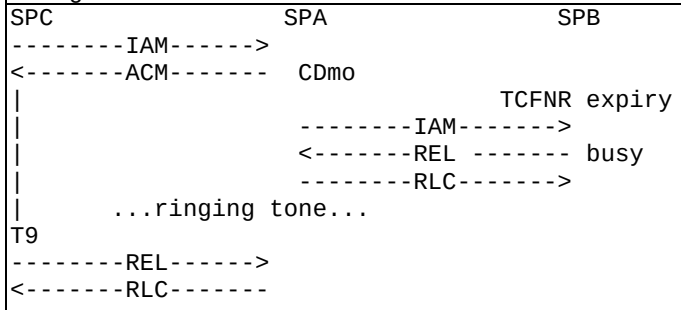
Test purpose

Unsuccessful call setup to the diverted-to user, ringing tone applied by the diverting exchange

To verify that, if the IUT receives a release indication with cause "user busy" from the diverted-to exchange, it continues to provide ringing tone to the calling user until he releases the connection (or timer T9 in the controlling exchange expires), in case of CFNR(A) and CD(a, A).

Pre-test conditions

Arrange the data in the IUT so that called user has activated CFNR(A) or CD(a, A) to an external exchange.



1. The stimulus ISUP will initiate a call set up to the diverting user at IUT and check ringing tone.
2. The stimulus access is mainly responsible for generating the ringing tone.
3. Release with cause #17.

TSS CDIV/	TP ISS_V_12_33	ISUP'97 reference 2.5.2.5.2.1 c) iii)/Q.732 [27]	Selection expression DLE AND NOT PICS A.16/1	Q.788 [38] reference 2.6.4 2.7.5 2.8.3 2.9.5 2.9.6

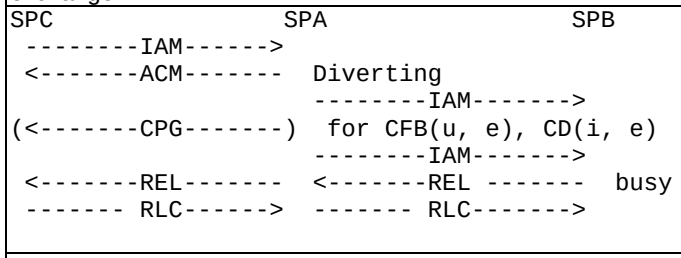
Test purpose

Unsuccessful call setup to the diverted-to user, call released by the diverting exchange

To verify that, if the IUT receives a release indication with cause "user busy" from the diverted-to exchange, it releases the call (incoming circuit) and the resources, in case of CFU, CFB, CD(i), CFNR(B) and CD(a, B).

Pre-test conditions

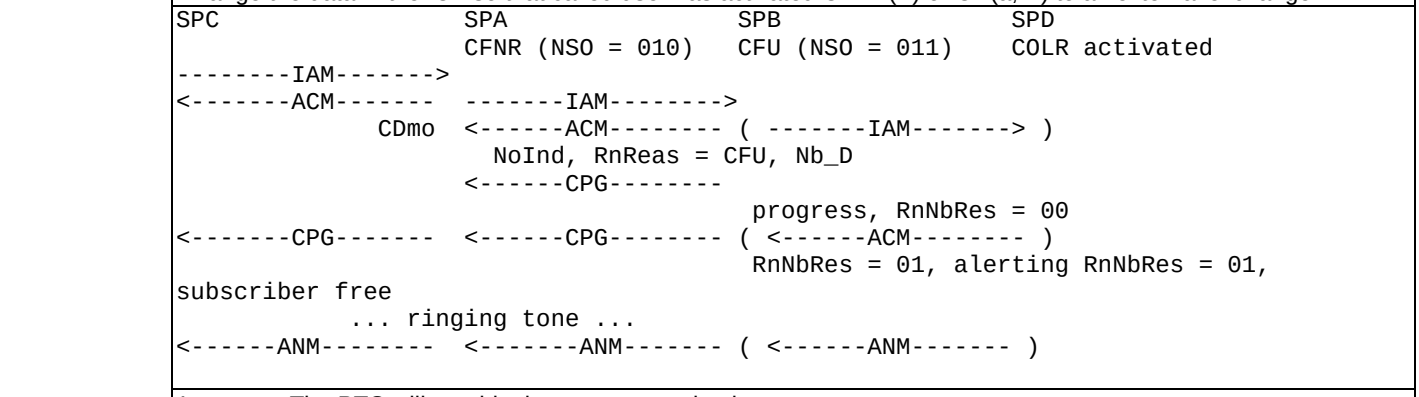
Arrange the data in the IUT so that called user has activated CFU, CFB, CD(i), CFNR(B) or CD(a, B) to an external exchange.



1. The stimulus ISUP will initiate a call set up to the diverting user at IUT and check the release of resources.
2. Release the call with cause #17, location "user".

TSS CDIV/	TP ISS_V_12_34	ISUP'97 reference 2.5.2.5.1.2 e) i-iv) 2)/Q.732 [27]	Selection expression DLE AND PICS A.16/1 (option A)	Q.788 [38] reference 2.7.1 2.9.4

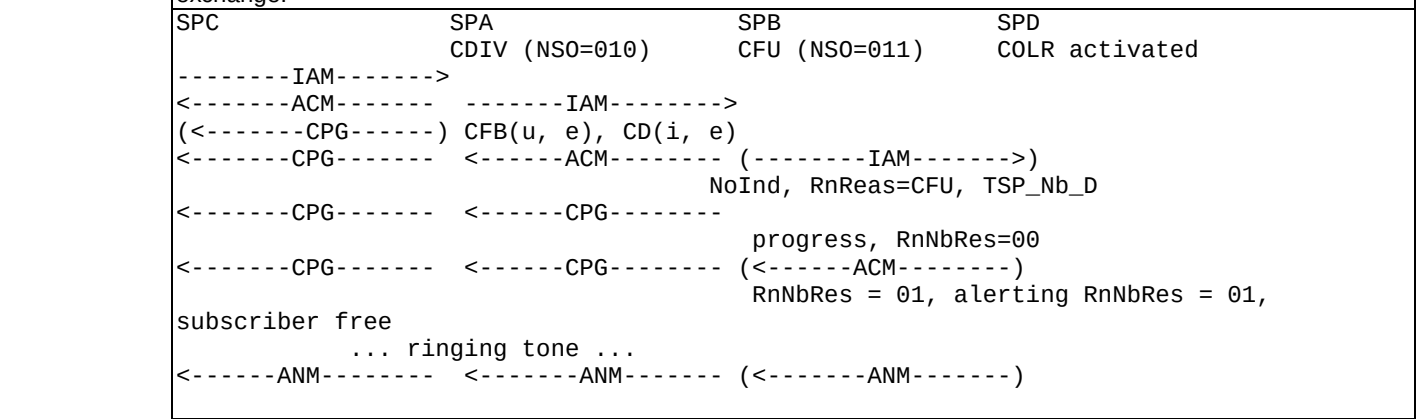
Test purpose
Notification procedures in the diverting exchange- collecting information for the backward direction
To verify that the IUT can successfully divert a call and store the diversion information parameters in the backward direction until an alerting indication is received from the diverted-to exchanges, in case of CFNR(A) and CD(a, A). The IUT receives several **CPG** messages with **call diversion information** and shall retain the most recent redirection reason and the most severe notification subscription option.
Pre-test conditions
Arrange the data in the IUT so that called user has activated CFNR(A) or CD(a, A) to an external exchange.



1. The PTC will provide the necessary stimulus.
2. ACM with CDInf, GenNot = "call is diverting" and RnNb = TSP_Nb_D.
3. CPG (progress) with RnNbRes=00 from user at UNI SPB (no COLR activated).
4. CPG (alerting) with RnNbRes=01 from user at UNI SPD (COLR activated) - coded as if it has been mapped from ACM including BCI.

TSS CDIV/	TP ISS_V_12_35	ISUP'97 reference 2.5.2.5.1.2 e) i-iv) 1)/Q.732 [27]	Selection expression DLE AND NOT PICS A.16/1	Q.788 [38] reference None

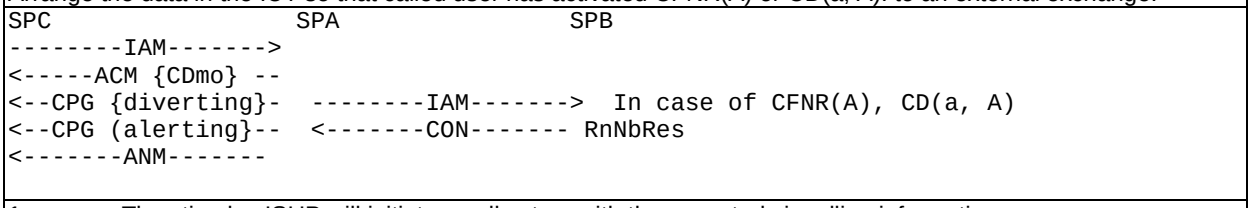
Test purpose
Notification procedures in the diverting exchange - passing on information in the backward direction
To verify that the IUT can successfully divert a call and pass on in the backward direction the diversion information parameters received from the diverted-to exchanges, in case of CFU, CFB, CD(i), CFNR(B) and CD(a, B).
Pre-test conditions
Arrange the data in the IUT so that called user has activated CFU, CFB, CD(i), CFNR(B) or CD(a, B) to an external exchange.



1. The PTC will provide the necessary stimulus.
2. ACM with CDInf, GenNot = "call is diverting" and RnNb = TSP_Nb_D.
3. CPG (progress) with RnNbRes = 00 from user at UNI SPB (no COLR activated).
4. CPG (alerting) with RnNbRes = 01 from user at UNI SPD (COLR activated) - coded as if it has been mapped from ACM including BCI.

TSS CDIV/	TP ISS_V_12_36	ISUP'97 reference 2.5.2.5.1.2 e) i-iv)/Q.732 [27]	Selection expression DLE AND PICS A.16/1 (option A)	Q.788 [38] reference 2.7.1 case C 2.9.4 case C

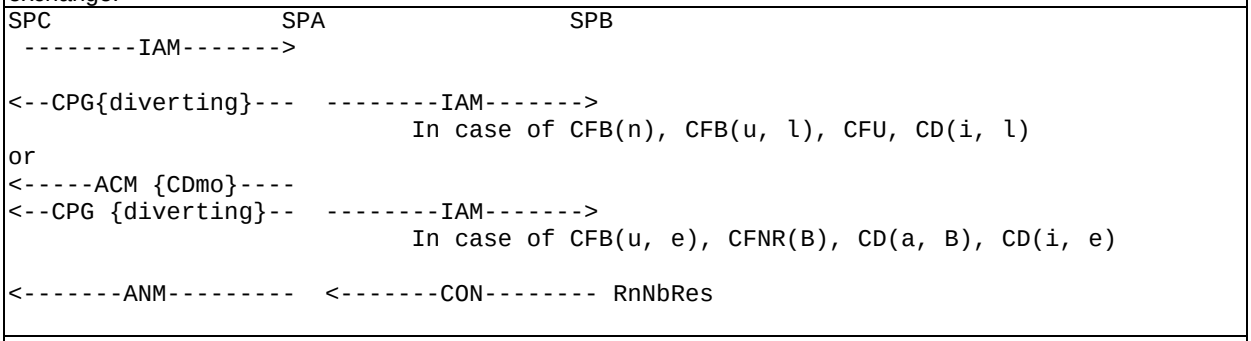
Test purpose
Mapping of CON to ANM in the diverting exchange - option A
To verify that the IUT can successfully divert a call and map a received **CON** from the forwarding leg to a **CPG** (alerting), followed by an **ANM** on the preceding leg in case of CFNR(A) or CD(a, A).
Pre-test conditions
Arrange the data in the IUT so that called user has activated CFNR(A) or CD(a, A). to an external exchange.



1. The stimulus ISUP will initiate a call set up with the expected signalling information.
2. The incoming circuit should be connected to outgoing circuit in both directions immediately.

TSS CDIV/	TP ISS_V_12_37	ISUP'97 reference 2.5.2.5.1.2 e) i-iv)/ Q.732 [27]	Selection expression DLE AND NOT PICS A.16/1	Q.788 [38] reference 2.6.1 case C 2.8.1 case C 2.9.1 case C

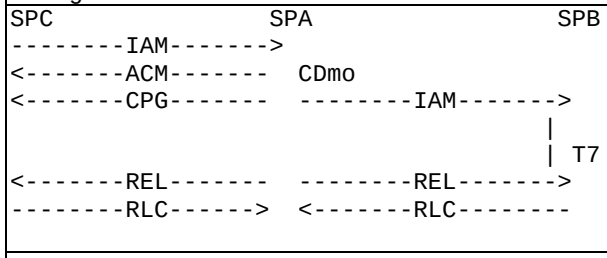
Test purpose
Mapping of CON to ANM in the diverting exchange - option B
To verify that the IUT can successfully divert a call and map a received **CON** from the forwarding leg to an **ANM** on the preceding leg, in case of CFU, CFB, CD(i), CFNR(B) or CD(a, B).
Pre-test conditions
Arrange the data in the IUT so that called user has activated CFU, CFB, CD(i), CFNR(B) or CD(a, B) to an external exchange.



1. The stimulus ISUP will initiate a call set up with the expected signalling information.
2. The incoming circuit should be connected to outgoing circuit in both directions immediately.

TSS CDIV/	TP ISS_V_12_38	ISUP'97 reference 2.1.1.1 e); Table A1/ EN 300 356-1 [5]	Selection expression DLE	Q.788 [38] reference None

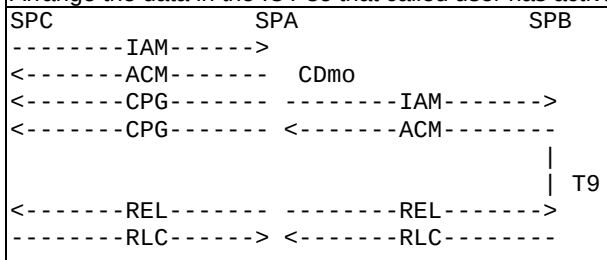
Test purpose
Timer T7 expiry in the diverting exchange
To verify that the IUT can divert a call and release the resources upon T7 timer expiry, if no **ACM** is received from the forwarded-to exchange.
Pre-test conditions
Arrange the data in the IUT so that called user has activated diversion to an external exchange.



1. The stimulus ISUP will initiate a call set up to diverting user at IUT and expect to receive the indication "call diversion may occur".
2. Verdict is set by checking status on left PTC together with the receipt of the REL message.

TSS CDIV/	TP ISS_V_12_39	ISUP'97 reference 2.1.4.6 b); Table A1/ EN 300 356-1 [5]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Timer T9 expiry in the diverting exchange
To verify that the IUT can divert a call and release the resources upon T9 timer expiry, if no **ANM** is received from the forwarded-to exchange
Pre-test conditions
Arrange the data in the IUT so that called user has activated diversion to an external exchange.



1. The stimulus ISUP will initiate a call set up to diverting user at IUT and expect to receive the indication "call diversion may occur".
2. ACM subscriber free.
3. Verdict is set by checking status on left PTC together with the receipt of the REL message.

TSS CDIV/	TP ISS_V_12_40	ISUP'97 reference 2.5.2.5.2.2/Q.732 [27]	Selection expression DLE AND PICS A.15/2 AND NOT PICS A.16/1	Q.788 [38] reference None

Test purpose

Call clearing in the diverting exchange - redirection counter set to maximum value

To verify that the IUT will refuse any further external diversions and clear the call, if it is received with the redirection counter in the **redirection information** set to the maximum value, in case of CFU, CFB, CD(i), CFNR(B) and CD(a, B).

The cause values shall be in case of:

CFU "call rejected" (21)
CFB "user busy" (17)
CFNR(B) "no answer from user (user alerted)" (19)
CD(i), CD(a, B) "no user responding" (18)

Pre-test conditions

Arrange the data in the IUT so that called user has activated diversion to an external exchange.

Case a)

```
SPA                 SPB
  <-------IAM--------
  --------REL------->
  <-------RLC--------
```

1. IAM with Redirection counter set to 5 (or TSP_max_div if not equal 5).
2. Call rejected - Cause #21 for CFU.

Case b)

```
SPA                 SPB
  <-------IAM--------
  --------REL------->
  <-------RLC--------
```

1. IAM with Redirection counter set to 5 (or TSP_max_div if not equal 5).
2. User busy - Cause #17 for CFB.

Case c)

```
SPA                 SPB
  <-------IAM--------
  --------REL------->
  <-------RLC--------
```

1. IAM with Redirection counter set to 5 (or TSP_max_div if not equal 5).
2. No user responding - Cause #18 for CD(i).

Case d)

```
SPA                 SPB
  <-------IAM--------
  --------ACM------->
  --------REL------->
  <-------RLC--------
```

1. IAM with Redirection counter set to 5 (or TSP_max_div if not equal 5).
2. No user responding - Cause #18 for CD(a, B).

Case e)

```
SPA                 SPB
  <-------IAM--------
  --------ACM------->
  --------REL------->
  <-------RLC--------
```

1. IAM with Redirection counter set to 5 (or TSP_max_div if not equal 5).
2. No answer from user (user alerted) - Cause #19 for CFNR(B).

TSS CDIV/	TP ISS_V_12_41	ISUP'97 reference 2.5.2.5.2.2/Q.732 [27]	Selection expression DLE AND PICS A.15/2 AND PICS A.16/1	Q.788 [38] reference None

Test purpose

Continue providing ringing tone in the diverting exchange - redirection counter set to maximum value

To verify that the IUT will refuse any further (external or internal) diversions and continue providing ringing tone until the calling user clears the call (or timer T9 in OLE expires), if it is received with the redirection counter in the **redirection information** set to the maximum value, in case of CFNR(A) and CD(a, A).

Pre-test conditions

Arrange the data in the IUT so that called user has activated diversion to an exchange.

Case a)

```
access              SPA                  SPB
<------setup-------- <-------IAM---------
 |                   --------ACM-------->
 |        ... ringing tone ...
 |
T9                   <-------REL---------
                     --------RLC-------->
```

1. IAM with Redirection counter set to 5 (or TSP_max_div if not equal 5).
2. This timer simulates T9 at the controlling exchange.
3. Release the call with cause 16 - Normal call clearing (default).

Case b)

```
access              SPA                  SPB
<------setup-------- <-------IAM---------
 |                   --------ACM-------->
 |        ... ringing tone ...
 |
T9                   <-------REL---------
                     --------RLC-------->
```

1. IAM with Redirection counter set to 5 (or TSP_max_div if not equal 5).
2. Release the call with cause 16 - Normal call clearing (default).

TSS CDIV/	TP ISS_V_12_42	ISUP'97 reference 2.5.2.5.1.2 c)/Q.732 [27] ; 2.6/ EN 300 356-1 [5]	Selection expression DLE AND BCall PICS A.13/11	Q.788 [38] reference None

Test purpose

Interactions with the propagation delay determination procedure

To verify that the IUT can successfully divert a call and set the required propagation delay value on the outgoing circuit correctly. The value should be set to the received value plus the propagation delay for the outgoing route, as if the IUT was an intermediate exchange.

Pre-test conditions

Arrange the data in the IUT so that called user has activated diversion to an external exchange

```
 SPC                 SPA                  SPB
 ----IAM(PDC=X)---->
 <-ACM {CDmo/NoInd}-  ----IAM(PDC=X+D)-->  (with RnInf, OriCdNb, RgNb)
 <-------CPG--------  <-------ACM-------- RnNbRes
                           ... ringing tone ...
 <-------ANM--------  <--ANM(CHInf = X+D)--
  :
  :
```

1. The stimulus IAM contains an initial propagation delay value of X ms.
2. The received IAM should contain a propagation delay value increased by D ms.
3. Send an ANM with Call history information.

TSS CDIV/	TP ISS_V_12_43	ISUP'97 reference 2.6.3/Q.732 [27]	Selection expression DLE AND PICS A.3/3	Q.788 [38] reference None

Test purpose
Call diversion - interaction with COLP
To verify that the **connected number** and the additional connected number in the **generic number** received in an **ANM** or **CON** message are passed on unmodified at a diverting exchange.

NOTE: The CON will be mapped to an ANM.

Pre-test conditions
Arrange the data in the IUT so that called user has activated diversion to an external exchange.

```
Case a)
 SPC                SPA                SPB
 --------IAM------>
 <-ACM{CDmo/NoInd}-  --------IAM------->  (with RnInf, OriCdNb, RgNb)
 <-------CPG-------  <-------ACM--------  RnNbRes
           ... ringing tone ...
 <-------ANM-------  <-------ANM--------  ConNb, addConNb in GenNb
  :
```

1. The stimulus ISUP will initiate a call set up with the expected signalling information.
2. Send the ConNb and addConNb in GenNb from user at SPB.

```
Case b)
 SPC                SPA                SPB
 --------IAM------>
 <-ACM{CDmo/NoInd}-  --------IAM------->  (with RnInf, OriCdNb, RgNb)
 <-------ANM-------  <-------CON-------  RnNbRes, ConNb, addConNb in GenNb
```

1. The stimulus ISUP will initiate a call set up with the expected signalling information.
2. Send the ConNb and addConNb in GenNb from user at SPB.

TSS CDIV/	TP ISS_V_12_44	ISUP'97 reference 2.6.5/Q.732 [27]	Selection expression DLE AND PICS A.3/1	Q.788 [38] reference None

Test purpose
Call diversion - interaction with CLIP
To verify that the diverting exchange diverts the **calling party number** and the additional calling number in the **generic number**.
Pre-test conditions
Arrange the data in the IUT so that called user has activated diversion to an external exchange.

```
 SPC                SPA                SPB
 --------IAM------>
<-ACM{CDmo/NoInd}--  --------IAM------->  (with RnInf, OriCdNb, RgNb)
<-------CPG--------  <-------ACM-------- RnNbRes
           ... ringing tone ...
 <-------ANM-------  <-------ANM--------
```

1. The stimulus ISUP will initiate a call set up with CgPN and addCgPN in GenNb.

NOTE: For the selection: Called party has to subscribe to CLIP, although diverted-to user beneficiates of the information.

TSS CDIV/	TP ISS_V_12_45	ISUP'97 reference 2.6.7/Q.732 [27]	Selection expression DLE AND PICS A.3/7	Q.788 [38] reference None

Test purpose
Call diversion - interaction with CUG - CUG call not diverted
To verify that a CUG call with outgoing access not allowed to a non-CUG user who has activated diversion is not forwarded.

```
 access              SPA                 SPB
                      <----IAM (CUG)---- (-OA)
                      -----REL(#87)---->
                      <-------RLC-------
```

1. No call set up should be observed on the access side.
2. Send an IAM with ISUP preference indicator in the FCI set to "ISUP required all the way" and CUG call indicator in the OFCI set to "CUG call, outgoing access not allowed".
3. REL with cause #87 "User not member of CUG". See also CUG test case ISS_V_7_14.

TSS CDIV/	TP ISS_V_12_46	ISUP'97 reference 2.6.7/Q.732 [27]	Selection expression DLE AND PICS A.3/7	Q.788 [38] reference None

Test purpose
Call diversion - interaction with CUG - CUG call diverted
To verify that a CUG call with outgoing access not allowed to a CUG member who has activated diversion is successful and that the CUG restrictions are forwarded.
Pre-test conditions
Arrange the data in the IUT so that called user has activated diversion to an external exchange and has subscribed to CUG.

```
SPC                 SPA                   SPB
 -----IAM (CUG)---->  -----IAM (CUG)----> (-OA)
```

1. Initiate a CUG call set up from SPC specifying a CUG interlock code. The CUG call is with outgoing access not allowed.
2. CUG call indicator set to "CUG call, outgoing access not allowed".

TSS CDIV/	TP ISS_V_12_47	ISUP'97 reference 2.6.17/Q.732 [27]	Selection expression DLE AND PICS A.3/8	Q.788 [38] reference None

Test purpose
Call diversion - interaction with SUB - old called party sub-address not diverted
To verify that the IUT does not divert the called party sub-address.
Pre-test conditions
Arrange the data in the IUT so that called user has activated diversion to an external exchange.

```
 SPC                 SPA                   SPB
 --------IAM------>
 <-ACM{CDmo/NoInd}- --------IAM------->with RnInf, OriCdNb, RgNb
 <-------CPG------- <-------ACM-------- RnNbRes
         ... ringing tone ...
 <-------ANM------- <-------ANM--------
```

1. The stimulus ISUP will initiate a call set up with a called party sub-address.
2. If IUT diverts the called party sub-address it's a "fail".
3. If the IUT does not divert a sub-address in the ATP it's a "pass".
4. IF the IUT changed the called party sub-address from TSP_Sub_A to TSP_Sub_B it's a "pass".

TSS CDIV/	TP ISS_V_12_48	ISUP'97 reference 2.6.17/Q.732 [27]	Selection expression DLE AND PICS A.3/8	Q.788 [38] reference None

Test purpose
Call diversion - interaction with SUB - new called party sub-address included
To verify that a new called party sub-address corresponding to the diverted-to user shall be provided by the served user at call diversion activation and shall be included in the **access transport** parameter in the **IAM** sent on the diverted leg.
Pre-test conditions
Arrange the data in the IUT so that called user has activated diversion to an external exchange and has subscribed to SUB.

```
SPC             SPA                  SPB
--------IAM------>
<-ACM{CDmo/NoInd}-  --------IAM------->with RnInf, OriCdNb, RgNb
<-------CPG-------  <-------ACM-------- RnNbRes
          ... ringing tone ...
<-------ANM-------  <-------ANM-------
```

1. The stimulus ISUP will initiate a call set up with a called party sub-address.
2. The IUT changed the called party sub-address from TSP_Sub_A to TSP_Sub_B.

TSS CDIV/	TP ISS_V_12_49	ISUP'97 reference 2.7/Q.732 [27] ; 2.1.1.1/ EN 300 356-1 [5]	Selection expression DLE AND IWorkE	Q.788 [38] reference None

Test purpose
Call diversion - interworking with other networks
To verify that the IUT is able to handle the call to other signalling systems according to the basic call procedures. If the ISDN user part preference indicator in the **forward call indicators** is set to "ISDN user part ...:
... not required all the way" (01) then the call should be diverted
... preferred all the way" (00) then the call should be diverted
... required all the way" (10) then the call should be rejected/released.
Pre-test conditions
Arrange the data in the IUT so that the called user has activated diversion with a diverted-to number which is to be routed to another signalling system.

Case a)

```
SPC    non-ISUP    SPA                 SPB
 <-------IAI-------  <-------IAM--------
 --------ACM------>  -------ACM-------->
 --------ANC------>  -------ANM-------->
```

1. Assist a call set up from the UNI at SPB on a non-ISUP route.
2. Initiate a call set up specifying "ISDN user part not required all the way" in the FCI of the IAM.
3. The call should complete. For the non-ISUP side TUP messages have been chosen as an example.

Case b)

```
 SPC    non-ISUP    SPA                 SPB
 <-------IAI-------  <-------IAM--------
 --------ACM------>  -------ACM-------->
 --------ANC------>  -------ANM-------->
```

1. Assist a call set up from the UNI at SPB on a non-ISUP route.
2. Initiate a call set up specifying "ISDN user part preferred all the way" in the FCI of the IAM.
3. The call should complete.

Case c)

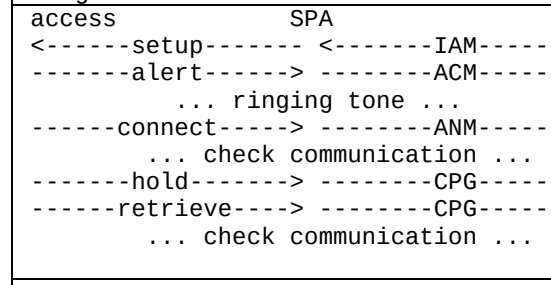
```
SPC      non-ISUP   SPA                  SPB
                      <-------IAM---------
                      --------REL-------->
                      <-------RLC---------
```

1. Assist a call set up from the UNI at SPB on a non-ISUP route.
2. Initiate a call set up specifying "ISDN user part required all the way" in the FCI of the IAM.
3. The call should be released.

6.2.13 Call hold (HOLD)

TSS HOLD/	TP ISS_V_13_1	ISUP'97 reference 2.5.2.1.1.1; 2.5.2.1.1.2/ EN 300 356-20 [22]	Selection expression Local	Q.788 [38] reference 2.11.3

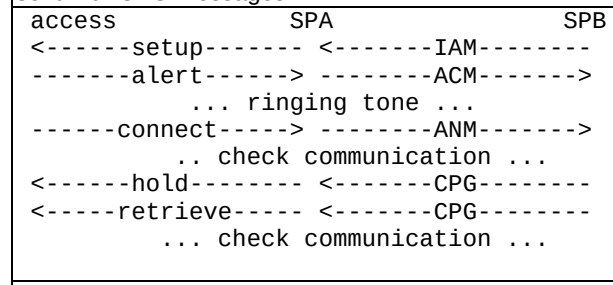
Test purpose
Call hold after answer, requested by the local user
To verify that a call can be placed on hold and can be retrieved again by the local user and that notifications are sent with **CPG** messages having the **event indicator** set to "progress".
Pre-test conditions
Arrange the data in the IUT so that the local user subscribes to the Call hold service.



1. The call is put on HOLD by the called party.
2. The call is retrieved by the called party.

TSS HOLD/	TP ISS_V_13_2	ISUP'97 reference 2.5.2.1.1.1; 2.5.2.1.1.2/ EN 300 356-20 [22]	Selection expression Local	Q.788 [38] reference 2.11.3

Test purpose
Call hold after answer, requested by the remote user
To verify that a call can be placed on hold and can be retrieved again by the remote user and that notifications are sent with **CPG** messages.



1. The call is put on HOLD by the remote user.
2. The call is retrieved by the remote user.

TSS HOLD/	TP ISS_V_13_3	ISUP'97 reference 2.2.1; 2.5.2.1.1.1; 2.5.2.1.1.2/ EN 300 356-20 [22]	Selection expression OLE and PICS A.17/2	Q.788 [38] reference 2.11.1

Test purpose
Call hold after alerting, requested by the local user
To verify that an outgoing call can be placed on HOLD after alerting has commenced and can be retrieved afterwards by the local user and that notifications are sent with **CPG** messages.
Pre-test conditions
Arrange the data in the IUT so that the local user subscribes to the Call hold service.

```
access           SPA                SPB
-------setup------> --------IAM------>
<------alert------- <-------ACM-------
          ... ringing tone ...
-------hold-------> --------CPG------>
<------answer------ <-------ANM-------
------retrieve----> --------CPG------>
      ... check communication ...
```

TSS HOLD/	TP ISS_V_13_4	ISUP'97 reference 2.2.1; 2.9/ EN 300 356-20 [22]	Selection expression OLE and PICS A.17/2	Q.788 [38] reference None

Test purpose
Call hold after alerting, expiry of T9 while the call is on hold
To verify that a held call is released if it is not answered before expiry of T9 (waiting for **ANM**).
Pre-test conditions
Arrange the data in the IUT so that the local user subscribes to the Call hold service.

```
access            SPA                  SPB
-------setup------>  --------IAM------->
<------alert-------  <-------ACM--------
           ... ringing tone ...
-------hold------->  --------CPG------->
<------disc--------  --------REL------->
                    <-------RLC--------
```

1. Call HOLD received.
2. Cause #19: No answer from user (user alerted).

TSS HOLD/	TP ISS_V_13_5	ISUP'97 reference 2.2.1; 2.5.2.1.1.1; 2.5.2.1.1.2/ EN 300 356-20 [22]	Selection expression OLE and PICS A.17/1	Q.788 [38] reference 2.11.1

Test purpose
Call hold after IAM, local user requests HOLD for outgoing call
To verify that an outgoing call can be placed on hold and can be retrieved afterwards by the local user and that notifications are sent with **CPG** messages.
Pre-test conditions
Arrange the data in the IUT so that the local user subscribes to the Call hold service.

```
access           SPA                 SPB
------setup-------> -------IAM--------->
------hold--------> -------CPG--------->
             .
------retrieve----> -------CPG--------->
       ... check communication ...
<-----alert------- <-------ACM---------
           ... ringing tone ...
<-----connect----- <-------ANM---------
       ... check communication ...
```

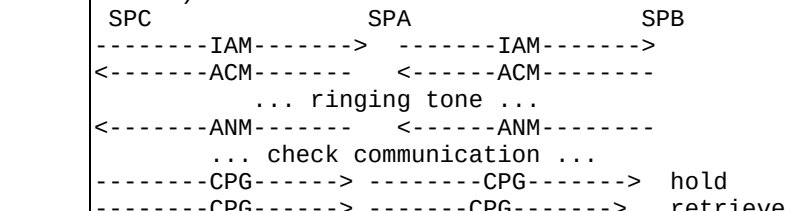
TSS HOLD/	TP ISS_V_13_6	ISUP'97 reference 2.5.2.2.1; 2.5.2.3.1; 2.5.2.4.1/ EN 300 356-20 [22]	Selection expression IntermE	Q.788 [38] reference 2.11.3

Test purpose

Call hold after answer (transit call)

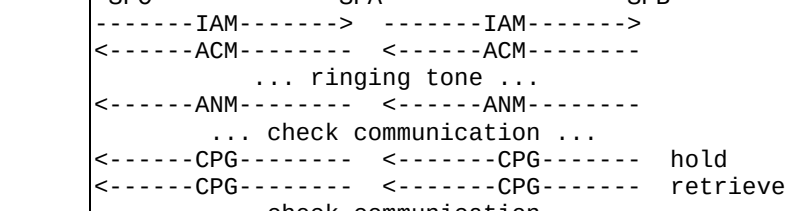
To verify that a transit call can be placed on hold and can be retrieved again by the served user (called or calling party) and that the indications are passed on transparently.

Case a)



1. The call is put on HOLD by the calling user.
2. The call is retrieved by the calling user.

Case b)

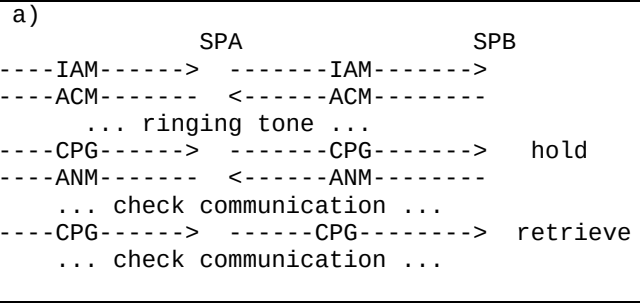


1. The call is put on HOLD by the called party.
2. The call is retrieved by the called party.

TSS HOLD/	TP ISS_V_13_7	ISUP'97 reference 2.2.2; 2.5.2.2.1; 2.5.2.3.1; 2.5.2.4.1/ EN 300 356-20 [22]	Selection expression IntermE	Q.788 [38] reference 2.11.1

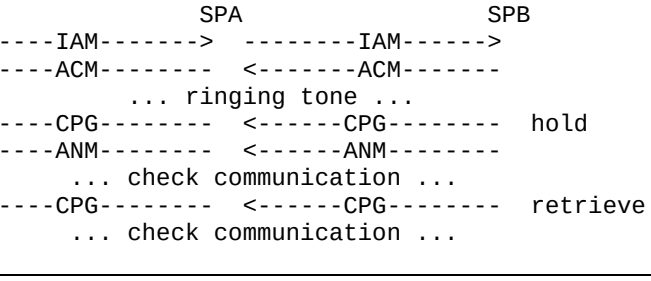
Test purpose
Call hold after alerting (transit call)
To verify that a transit call can be placed on hold after alerting has commenced at the called party and can be retrieved afterwards and that the indications are passed on transparently by the IUT.

Case a)



1. The call is put on HOLD by the calling party.
2. The call is retrieved by the calling party.

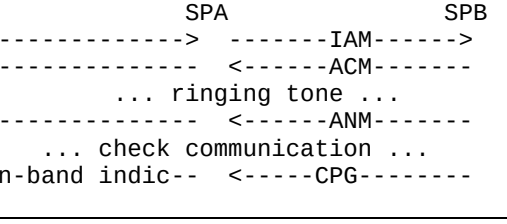
Case b)



1. The call is put on HOLD by the called party.
2. The call is retrieved by the called party.

TSS HOLD/	TP ISS_V_13_8	ISUP'97 reference 2.7/ EN 300 356-20 [22]	Selection expression IWorkE and PICS A.17/3	Q.788 [38] reference None

Test purpose
Call hold after answer, interworking with PSTN
To verify that an in-band indication is sent to the PSTN subscriber if a call is placed on hold by the ISDN subscriber.



1. Continue if an indication of in-band information is received.

TSS HOLD/	TP ISS_V_13_9	ISUP'97 reference 2.3/ EN 300 356-1 [5]	Selection expression Local	Q.788 [38] reference 2.11.4
Test purpose *Call hold after answer, release of the call by the local served user* To verify that a call in the held state can be released by the user who activated the Call hold service. Pre-test conditions Arrange the data in the IUT so that the local user subscribes to the Call hold service.				
access SPA SPB <------setup------- <-------IAM-------- -------alert-------> -------ACM-------> ... ringing tone ... ------connect------> -------ANM-------> ... check communication ... ------hold---------> -------CPG-------> ... check no through-connection ... -------disc--------> -------REL------->				
1. The call is put on HOLD by the called party.				

TSS HOLD/	TP ISS_V_13_10	ISUP'97 reference 2.3/ EN 300 356-1 [5]	Selection expression Local	Q.788 [38] reference 2.11.5
Test purpose *Call hold after answer, release of the call by the non-served user* To verify that a call in the held state can be released by the user who did not activate the Call hold service.				
access SPA SPB <-------setup------- <-------IAM-------- --------alert------> --------ACM-------> ... ringing tone ... -------connect-----> --------ANM-------> ... check communication ... <-------hold-------- <-------CPG-------- --------disc-------> --------REL------->				
1. The call is put on HOLD by the called party.				

TSS HOLD/	TP ISS_V_13_11	ISUP'97 reference 2.3/ EN 300 356-1 [5]	Selection expression Local	Q.788 [38] reference 2.11.2
Test purpose *Call hold after alerting, release of the call by the local served user* To verify that a held call can be released by the user who activated the Call hold service without retrieving the call. Pre-test conditions Arrange the data in the IUT so that the local user subscribes to the Call hold service.				
access SPA SPB <------setup------- <------IAM-------- -------alert------> -------ACM-------> ... ringing tone ... -------hold--------> -------CPG-------> -------disc--------> -------REL------->				

TSS HOLD/	TP ISS_V_13_12	ISUP'97 reference 2.2.1; 2.5.2.5.1/ EN 300 356-20 [22]	Selection expression DLE	Q.788 [38] reference 2.11.1
Test purpose *Call hold after alerting, requested by the remote user* To verify that an incoming call can be placed on hold and can be retrieved afterwards by the remote user.				

```
access              SPA                 SPB
<------setup-------  <-------IAM--------
-------alert------>  --------ACM------->
           ... ringing tone ...
<------hold--------  <-------CPG--------
<-----retrieve-----  <-------RES--------
```

6.2.14 Call waiting (CW)

TSS CW/	TP ISS_V_14_1	ISUP'97 reference 1.5.2.1.1/ EN 300 356-20 [22]	Selection expression OLE	Q.788 [38] reference 2.10.1
Test purpose *Call waiting indication in ACM* To verify that a call can be successfully established if the **ACM** indicates that it is a waiting call.				

```
access              SPA                 SPB
------setup------->  --------IAM------->
<------alert-------  <-------ACM--------
               ... call waiting ...
```

TSS CW/	TP ISS_V_14_2	ISUP'97 reference 1.5.2.1.1/ EN 300 356-20 [22]	Selection expression OLE	Q.788 [38] reference 2.10.1
Test purpose *Call waiting indication in CPG* To verify that a call can be successfully established if the **CPG** indicates that it is a waiting call.				

```
access             SPA                 SPB
------setup------->  --------IAM------->
<------alert-------  <-------ACM--------
                     <-------CPG--------
          ... call waiting ...
```

TSS CW/	TP ISS_V_14_3	ISUP'97 reference 1.5.2.2.1; 1.5.2.3.1; 1.5.2.4.1/ EN 300 356-20 [22]	Selection expression IntermE	Q.788 [38] reference 2.10.1
Test purpose *Call waiting indication in ACM (transit)* To verify that a call can be successfully established if the **ACM** indicates that it is a waiting call.				

```
SPC              SPA                 SPB
-------IAM-----> --------IAM------->
<------ACM------ <-------ACM--------
          ... call waiting ...
```

1. Call waiting indication is sent in ACM.

TSS CW/	TP ISS_V_14_4	ISUP'97 reference 1.5.2.2.1; 1.5.2.3.1; 1.5.2.4.1/ EN 300 356-20 [22]	Selection expression IntermE	Q.788 [38] reference 2.10.1

Test purpose
Call Waiting indication in CPG (transit)
To verify that a call can be successfully established if the **CPG** indicates that it is a waiting call.

```
 SPC            SPA                SPB
 -------IAM-----> --------IAM------>
 <------ACM------ <-------ACM-------  (NoInd)
 <------CPG------ <-------CPG-------  (Call waiting)
```

1. Call waiting indication is sent in CPG.

TSS CW/	TP ISS_V_14_5	ISUP'97 reference 1.5.2.5.1/ EN 300 356-20 [22]	Selection expression DLE	Q.788 [38] reference 2.10.1

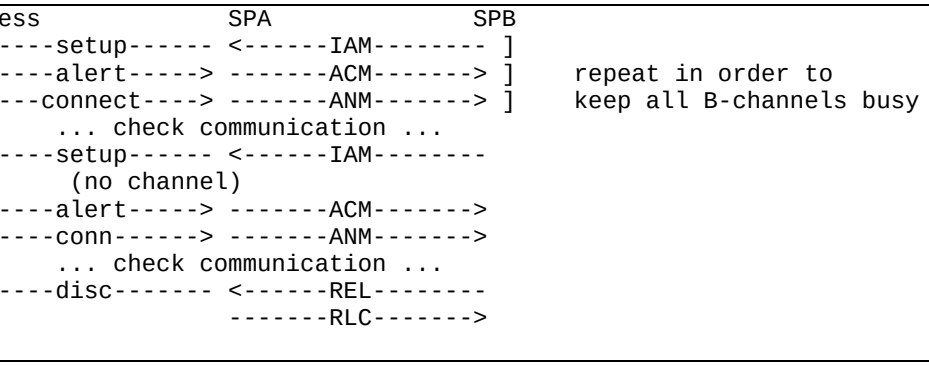
Test purpose
Call waiting indication in ACM or CPG
To verify that a call can be successfully established if the user has subscribed to the call waiting service (with notification) and if he is currently busy, but answers the waiting call. The indication shall be sent either in an **ACM** or a **CPG**.
Pre-test conditions
Arrange the data in the IUT so that the called user subscribes to the call waiting service with the notification option.

```
 access            SPA                    SPB
<------setup------  <-------IAM------- ]
-------alert------>  --------ACM------> ]    repeat in order to
------connect---->  --------ANM------> ]    keep all B-channels busy
      ... check communication ...
<------setup------  <-------IAM-------
         (no channel)
-------alert------>  --------ACM------> ... call waiting ...
                 ( --------CPG------> ... call waiting ...  )
------connect---->  --------ANM------>
     ... check communication ...
<------disc-------  <-------REL-------
                    --------RLC------>
```

1. Set up calls on every B-channel busy.
2. Call waiting indication in ACM.
3. Call waiting indication in CPG.
4. Release the calls in order to get an idle state.

TSS CW/	TP ISS_V_14_6	ISUP'97 reference 1.5.2.5.1/ EN 300 356-20 [22]	Selection expression DLE	Q.788 [38] reference 2.10.1

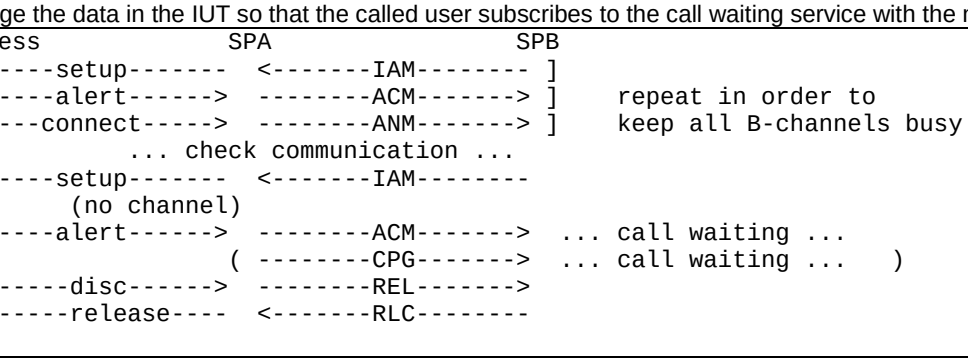
Test purpose
Call waiting without notification
To verify that a call can be successfully established if the user has subscribed to the call waiting service (without notification) and if he is currently busy, but answers the waiting call. No indication shall be sent to the calling user.
Pre-test conditions
Arrange the data in the IUT so that the called user subscribes to the call waiting service without the notification option.



1. Set up calls on every B-channel busy.
2. No call waiting indication in ACM.
3. Release the calls in order to get an idle state.

TSS CW/	TP ISS_V_14_7	ISUP'97 reference 1.5.2.5.2/ EN 300 356-20 [22]	Selection expression DLE	Q.788 [38] reference 2.10.2

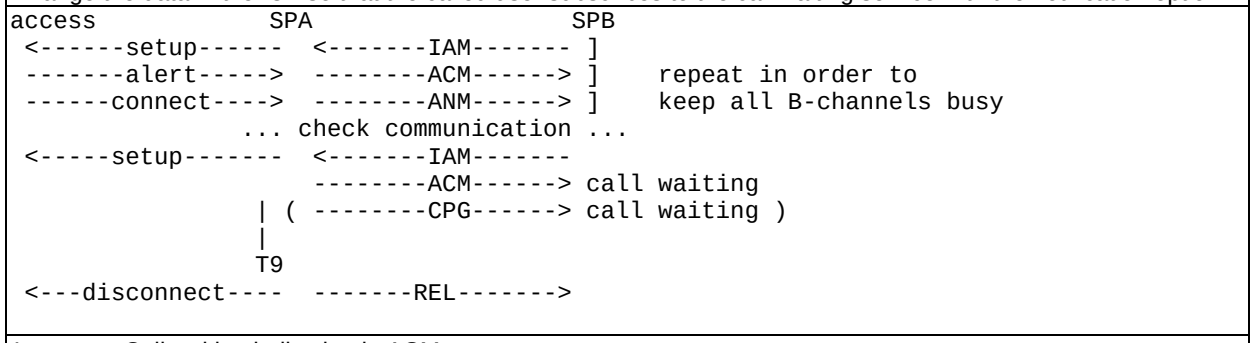
Test purpose
Call waiting rejected
To verify that the IUT sends a **REL** with cause #21 (call rejected) if a busy user rejects the waiting call.
Pre-test conditions
Arrange the data in the IUT so that the called user subscribes to the call waiting service with the notification option.



1. Set up calls on all B-channels.
2. Call waiting indication in ACM.
3. Call waiting indication in CPG.
4. Release the calls in order to get an idle state.

TSS CW/	TP ISS_V_14_8	ISUP'97 reference 1.5.2.5.2/ EN 300 356-20 [22]	Selection expression DLE	Q.788 [38] reference 2.10.3

Test purpose
Call waiting ignored (expiry of call waiting supervision timer)
To verify that the IUT sends a **REL** with cause #19 (no answer from user, user alerted) if a busy user does not answer the waiting call.
Pre-test conditions
Arrange the data in the IUT so that the called user subscribes to the call waiting service with the notification option.

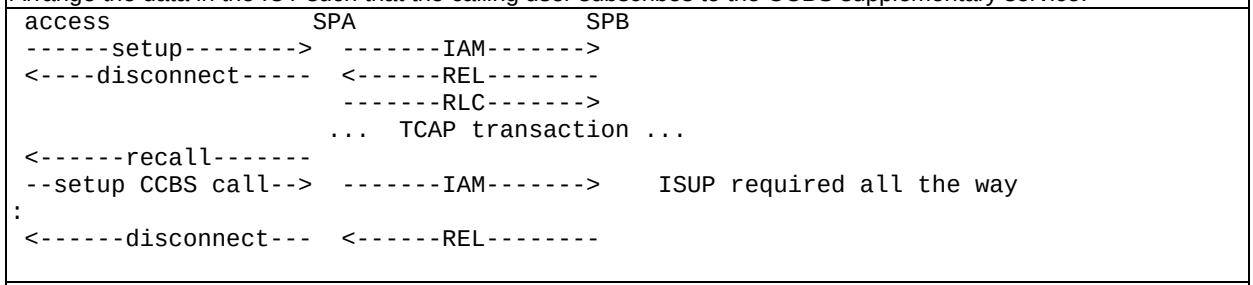


1. Call waiting indication in ACM.
2. Call waiting indication in CPG.

6.2.15 Completion of calls to busy subscribers (CCBS)

TSS CCBS-ISUP/	TP ISS_V_15_1	ISUP'97 reference 3.4.2.1.1; 3.5.3.1.1/ EN 300 356-18 [20]	Selection expression OLE	Q.788 [38] reference None

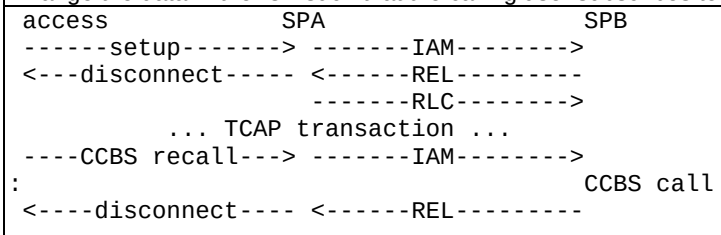
Test purpose
ISUP Preference Indicator in the CCBS call
To verify that for the CCBS call, the IUT sets the ISUP preference indicator in the **forward call indicator** parameter in the **IAM** to "ISDN User Part required all the way".
Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.



1. Set up a call to busy user at SPB.
2. User at SPB is found busy.
3. Check that user at SPB becomes free by using the RemoteUserFree CCBS ASE operation.
4. CCBS call with "ISDN User Part required all the way" in the FCI of the IAM.

TSS CCBS-ISUP/	TP ISS_V_15_2	ISUP'97 reference 3.4.2.1.3/ EN 300 356-18 [20]	Selection expression OLE	Q.788 [38] reference None

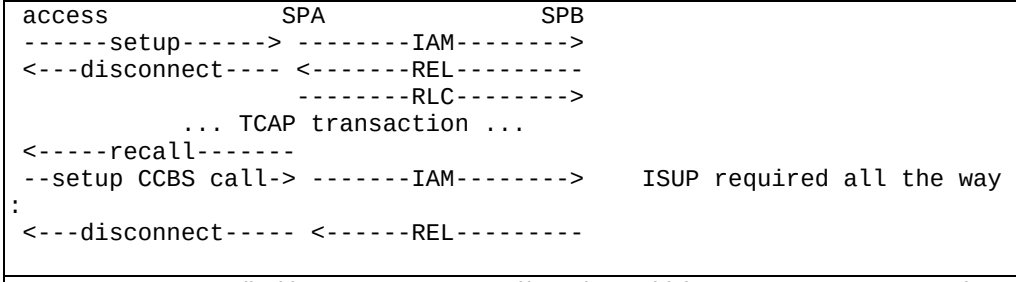
Test purpose
CCBS parameter in the CCBS call
To verify that for the CCBS call, the IUT includes in the **IAM** the CCBS call indicator in the **CCBS parameter** coded as "CCBS call".
Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.



1. Set up a call to busy user at SPB.
2. User at SPB is found busy.
3. Check that user at SPB becomes free by using the RemoteUserFree CCBS ASE operation.
4. Check Indication "CCBS call" in the IAM.

TSS CCBS-ISUP/	TP ISS_V_15_3	ISUP'97 reference 3.5.1.1.1.1/ EN 300 356-18 [20]	Selection expression OLE	Q.788 [38] reference None

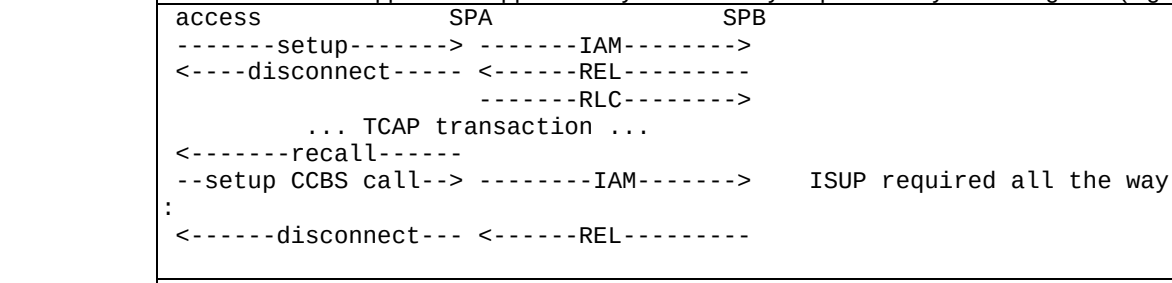
Test purpose
CCBS call with retained basic call information
To verify that for the CCBS call, the IUT includes the retained call information in the **IAM**:
User service information;
User service information prime;
Access transport (e.g. called party sub-address);
Called party number.
Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCBS and such that the relevant call information that is to be tested may be provided by the calling user.



1. Set up a call with USI, USIp, ATP and/or CdPN, which encounters user at SPB busy, activates TCAP and terminates the call.
2. User at SPB is found busy.
3. Check that user at SPB becomes free by using the RemoteUserFree CCBS ASE operation.
4. CCBS call with "ISDN User Part required all the way" in the FCI of the IAM. The retained call information about ATP, USI, USIp and CdPN shall be checked too.

TSS CCBS-ISUP/	TP ISS_V_15_4	ISUP'97 reference 3.5.1.1.1.1; 3.6.13/ EN 300 356-18 [20]	Selection expression OLE AND PICS A.18/3	Q.788 [38] reference None

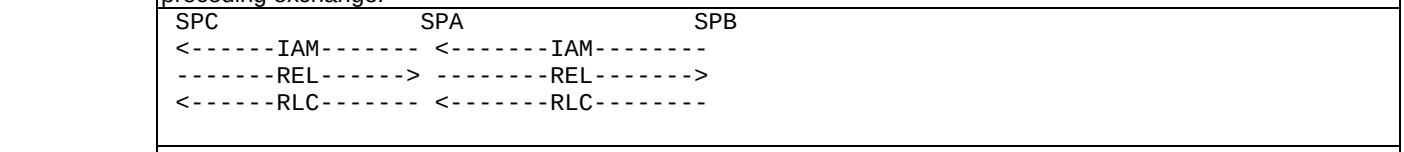
Test purpose
CCBS call with retained call information & interactions with other supplementary services
To verify that for the CCBS call, the IUT includes the retained call information in the IAM:
Calling party number (if supported);
Access transport (e.g. calling party sub-address if supported);
UUS1,2,3 (retained request if supported);
UUS1 (information given by user in response to CCBS recall, if supported);
Optional forward call indicator (with COLP request).
Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCBS and such that the relevant call information for the applicable supplementary services may be provided by the calling user (e.g. SUB, COLP).



1. Set up a call with Calling party number (if supported) ATP (e.g. calling party sub-address if supported); UUS1, 2, 3 (retained request if supported) UUS1 (information given by user in response to CCBS recall, if supported) OFCI (with COLP request) which encounters user at SPB busy, activates TCAP and terminate the call.
2. User at SPB is found busy.
3. Check that user at SPB becomes free by using the RemoteUserFree CCBS ASE operation.
4. CCBS call with "ISDN User Part required all the way" in the FCI of the IAM. The retained call information. about ATP, UUS1,2,3 request, UUI in CCBS recall and CdPN shall be checked too.

TSS CCBS-ISUP/	TP ISS_V_15_5	ISUP'97 reference 3.5.3.2.1; 3.5.3.3.1; 3.5.3.4.1/ EN 300 356-18 [20]	Selection expression IntermE	Q.788 [38] reference None

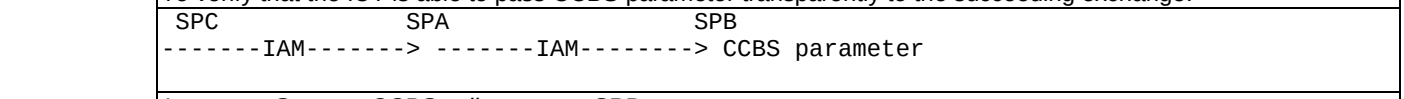
Test purpose
Transit support of diagnostics field in REL
To verify that the IUT is able to pass the diagnostics field including the CCBS indicator transparently to the preceding exchange.



1. Check diagnostics field in the REL.

TSS CCBS-ISUP/	TP ISS_V_15_6	ISUP'97 reference 3.5.3.2.1; 3.5.3.3.1; 3.5.3.4.1/ EN 300 356-18 [20]	Selection expression IntermE	Q.788 [38] reference None

Test purpose
Transit support of CCBS parameter in IAM
To verify that the IUT is able to pass CCBS parameter transparently to the succeeding exchange.



1. Set up a CCBS call to user at SPB.
2. Check that CCBSpar is received.

TSS CCBS-ISUP/	TP ISS_V_15_7	ISUP'97 reference 3.4.2.1.2/ EN 300 356-18 [20]	Selection expression DLE	Q.788 [38] reference None

Test purpose
CCBS possible to destination B
To verify that the IUT is able to generate in a **REL** message with cause #17 "User busy" or #34 "No circuit available" the diagnostics field containing a CCBS indicator with a "CCBS possible" indication.

```
 access              SPA                  SPB
 set the destination
 B busy
 user busy             <------IAM--------
                       -------REL------->
                       <------RLC--------
  <---disconnect----   <------REL--------
                       -------RLC------->
```

1. UNI at SPA becomes busy.
2. Check that "CCBS possible" is received in the release message with cause value #17 or #34.
3. Release the busy call.

TSS CCBS-ISUP/	TP ISS_V_15_8	ISUP'97 reference 3.4.2.1.3/ EN 300 356-18 [20]	Selection expression DLE	Q.788 [38] reference None

Test purpose
CCBS parameter in the CCBS call
To verify that the IUT is able to terminate the CCBS call, with the CCBS call indicator in the **CCBS parameter** in the **IAM** coded as "CCBS call".

```
access               SPA               SPB
 set the destination B busy
                       <------IAM--------  normal call
                       -------REL------->  CCBS possible
                      <------RLC--------
                      ... TCAP transaction ...
user frees resources
                   RemoteUserFree to CCBS call ( & reserve resource)
                  resource(s) still available
 <-----setup---------  <-----IAM---------  CCBS call
 ------alert-------->  ------ACM-------->
 -----connect------->  ------ANM-------->
 <-----disc----------  <-----REL---------
```

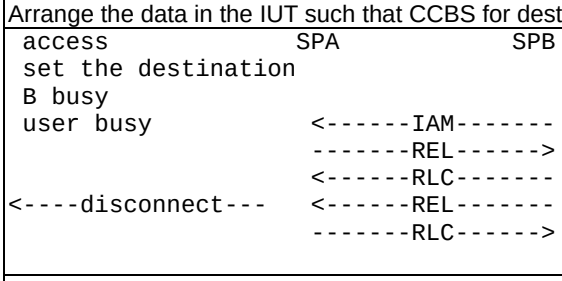
1. UNI at SPA becomes busy.
2. Check that remote user is free by using the RemoteUserFree CCBS ASE operation.
3. Process a CCBS call specified in the IAM.
4. Check that the call is terminated (ANM, CON, ...).

TSS CCBS-ISUP/	TP ISS_V_15_9	ISUP'97 reference 3.5/ EN 300 356-18 [20]	Selection expression DLE	Q.788 [38] reference None

Test purpose
CCBS not possible to destination B
To verify that the IUT is able to generate in a **REL** message with cause #17 "User busy" or cause #34 "No circuit available" the diagnostics field containing a CCBS indicator with a "CCBS not possible" indication.

NOTE: CCBS is not possible because e.g. the queue is set to zero or filled up or due to maintenance reasons.

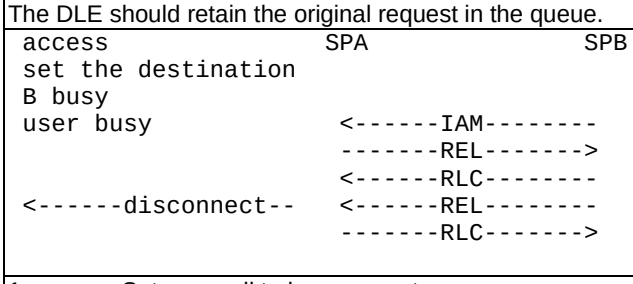
Pre-test conditions
Arrange the data in the IUT such that CCBS for destination B is not possible



1. Set up a call to busy user at SPA.
2. Check that "CCBS not possible" is received in the release message with cause value #17 or #34.
3. Release the busy call.

TSS CCBS-ISUP/	TP ISS_V_15_10	ISUP'97 reference 3.6.10.2.2 c); 3.5.3.5.2 c)/ EN 300 356-18 [20]	Selection expression DLE and PICS A.18/1	Q.788 [38] reference None

Test purpose
Destination busy upon arrival of CCBS call -Interaction with CFB and retention option supported
To verify that the IUT sends a **REL** with cause #17 or #34 and diagnostics "CCBS possible".
The DLE should retain the original request in the queue.



1. Set up a call to busy user at access.
2. Check that "CCBS possible" is received in the release message with cause value #17 or #34.
3. Release the busy call.

TSS CCBS-ISUP/	TP ISS_V_15_11	ISUP'97 reference 3.6.10.2.2 c); 3.5.3.5.2 c)/ EN 300 356-18 [20]	Selection expression DLE AND NOT PICS A.18/1	Q.788 [38] reference None

Test purpose
Destination busy upon arrival of CCBS call - Interaction with CFB and no retention option supported
To verify that the IUT sends a **REL** with cause #17 or #34 with diagnostics "CCBS possible" when the terminals are compatible.
The DLE releases all its resources for the original request and waits for new CCBS request.

```
access              SPA                SPB
set the destination
B busy
user busy           <------IAM--------
                    -------REL------->  CCBS possible
                    <------RLC--------
           ... TCAP transaction ..
                               RemoteUserFree
user busy again     <------IAM--------  CCBS call
                    -------REL------->  CCBS possible
                    <------RLC--------
<--disconnect---    <------REL--------
                    -------RLC------->
```

1. Set up a call to busy user at access.
2. CCBS call.
3. Check that "CCBS possible" is received in the release message with cause value #17 or #34.

TSS CCBS-ISUP/	TP ISS_V_15_12	ISUP'97 reference 3.7.10.2.2 c)/ EN 300 356-18 [20]	Selection expression DLE AND PICS A.18/9	Q.788 [38] reference None

Test purpose
CCBS call as a normal call - Interaction with CFB
To verify that the IUT deletes the CCBS parameter in the **IAM** if the CCBS call is forwarded by the initially busy user.
Pre-test conditions
User at destination B must subscribe to and activate CFB to an external user while the recall timer is running (CCBS-T9).

```
SPC              SPA                SPB
------IAM------->  (busy)
<-----REL--------
------RLC------->
  (user at SPA activates CDIV while CCBS-T9 runs)
-----IAM-------->  -------IAM-----> CFB
  with CCBSpar         no CCBSpar
```

1. Set up a call to busy user at SPA.
2. Check that no CCBSpar is received in the IAM.

TSS CCBS-ISUP/	TP ISS_V_15_13	ISUP'97 reference 3.5.3.5.1/ EN 300 356-18 [20]	Selection expression DLE AND PICS A.18/6	Q.788 [38] reference None

Test purpose
Maximum number of CCBS request queue entries of destination B
To verify that the IUT supports the maximum number of up to 5 queue entries.

```
 access            SPA                    SPB
 set the destination
 B busy
 user busy          <-----IAM--------
                    ------REL------->
                    <-----RLC--------
                    ...TCAP transaction ...
      Repeat more than 5 set up to busy user at SPA
:
<----disconnect---  <-----REL--------
                    ------RLC------->
```

1. Set up a call to busy user at access.
2. Send maximum number of CCBS requests and check that user at SPA becomes free by using the RemoteUserFree CCBS ASE operation.
3. One more IAM after the maximum number of calls is reached at SPA.
4. Check that "not CCBS possible" is received in the REL with cause value #17 or #34.
5. Release the busy call.
6. Set up calls (maximum 5 different) from SPB to SPA which encounters user at SPA busy. Activate CCBS for the different calls.
7. User at SPB requests maximum allowed CCBS request.
8. Received REL with cause value #17 or #34.

TSS CCBS-ISUP/	TP ISS_V_15_14	ISUP'97 reference 3.5.3.5.1/ EN 300 356-18 [20]	Selection expression DLE	Q.788 [38] reference None

Test purpose

Incoming non-CCBS call with identical service requirements released

To verify that the IUT, having an entry in the CCBS queue, releases a second incoming call if the service requirements of the second call are identical to the entry being processed and resources are available.

NOTE: The original request remains in the queue.

Pre-test conditions

Arrange the data in the IUT so that there are free resources in addition to the resource reserved for the first CCBS request.

```
 access              SPA              SPB
set the destination
B busy
user busy             <-----IAM-------- 1st call
                      ------REL-------> CCBS possible
                      <-----RLC--------
           ... TCAP transaction ..
user frees resources
         RemoteUserFree to 1st call ( & reserve resource
        resource(s) still available for potential 2nd call
                      <-----IAM-------- 2nd. independent call
                      ------REL-------> released because identical requirements
                      <-----RLC--------
         ... check TCAP transaction ...

                      <-----IAM-------- 1st. CCBS call (empty queue)
                      ...continue CCBS call  1st call.
```

1. Set up a 1st call to busy user at access.
2. Check release message with cause value # 17 or # 34 (1st call).
3. Check that remote user is free by using the RemoteUserFree CCBS ASE operation.
4. Process a second identical (with the same requirement to the one being processed) set up to the same remote user.
5. Check that the call is released with cause #17 or # 34 (2nd call).
6. Continue the 1st CCBS call in order to get an idle state.
7. Continue the 2nd CCBS call in order to get an idle state.

TSS CCBS-ISUP/	TP ISS_V_15_15	ISUP'97 reference 3.5.3.5.1/ EN 300 356-18 [20]	Selection expression DLE	Q.788 [38] reference None

Test purpose

Incoming non-CCBS call with not identical service requirements accepted

To verify that the IUT, having a queue entry in the CCBS queue, accepts a second incoming call if the service requirements of the second call are not identical to the entry being processed and resources are available.

NOTE: The original request remains in the queue.

Pre-test conditions

Arrange the data in the IUT so that there are free resources in addition to the resource reserved for the first CCBS request.

```
access              SPA               SPB
set the destination
B busy
user busy            <------IAM-------- 1st call
                     -------REL-------> CCBS possible
                     <------RLC--------
                     ... TCAP transaction ..
user frees resources
                  RemoteUserFree to 1st call ( & reserve resource)
                  resource(s) still available for potential 2nd call
 <-----setup--------- <-----IAM--------  2nd. independent call
 ------alert--------> ------ACM------->
 -----connect-------> ------ANM------->
 <-----disc---------- <-----REL--------
                ...continue with the 1st CCBS call...
```

1. Set up a call to busy user at access.
2. Check release message with cause value #17 or # 34 (1st call).
3. Check that remote user is free by using the RemoteUserFree CCBS ASE operation.
4. Process a second non-identical (without the same requirement to the one being processed) set up.
5. Check that the call is accepted (ANM, CON, ...).
6. End the TCAP dialogue for the 1st call.

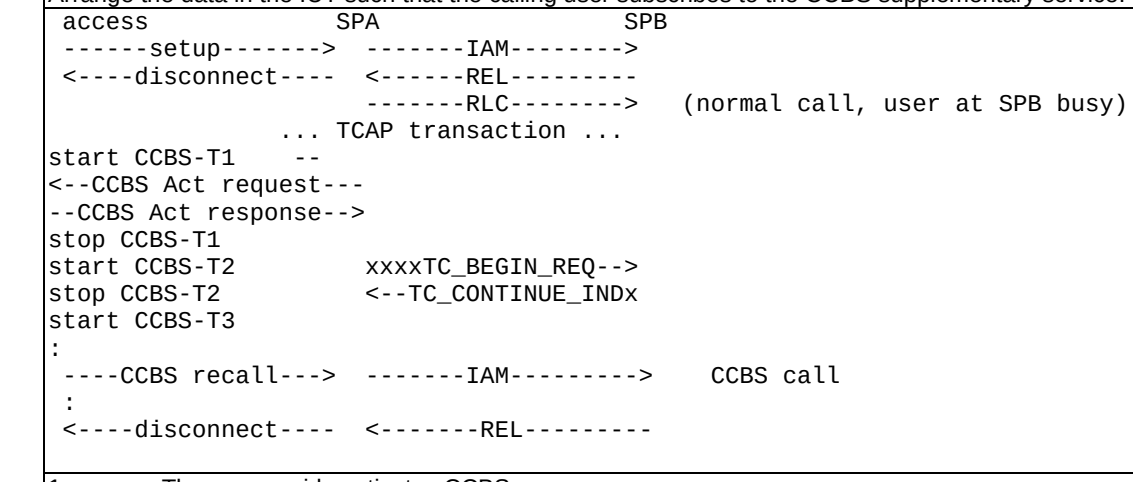
6.2.15.1 CCBS Application Service Element (ASE)

TSS CCBS-ASE/	TP ISS_TC_V_15_1	ISUP'97 reference 3.5.1.1.1.1/ EN 300 356-18 [20]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Ability to perform a CCBS REQUEST class 1 operation - successful
To verify that the IUT can successfully perform a CCBS REQUEST operation if required by the calling user:

NOTE 1: Send a **CcbsRequest invoke** to the DLE by using the TCAP primitive **TC-BEGIN request**(TC-INVOKE request).
NOTE 2: Receive a **CcbsRequest return result** from the DLE in a **TC-CONTINUE indication**(TC-INVOKE indication).

Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.



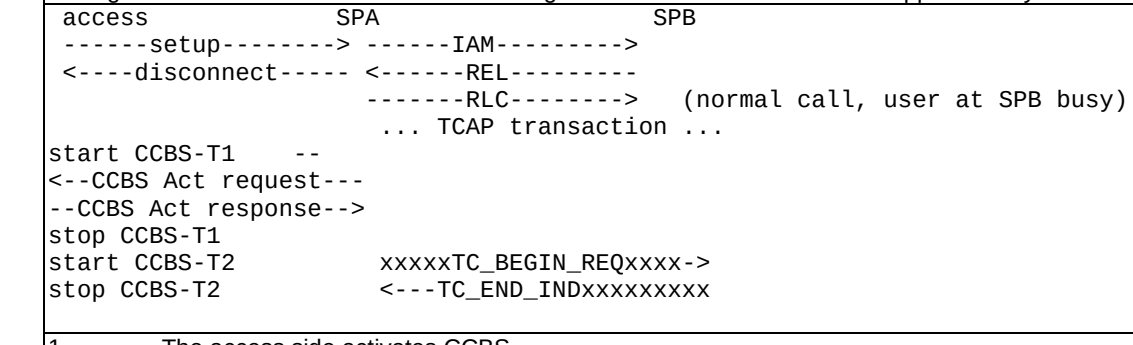
1. The access side activates CCBS.
2. The CcbsRequest invocation is received.
3. The user at SPB is now free for a CCBS call.
4. CCBS call set up with "ISDN User Part required all the way" in the FCI of the IAM.

TSS CCBS-ASE/	TP ISS_TC_I_15_2	ISUP'97 reference 3.5.1.1.1.2/ EN 300 356-18 [20]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Ability to perform a CCBS REQUEST class 1 operation - unsuccessful
To verify that if a failure occurs (short or long term denial) while invoking a CCBS REQUEST operation, the IUT is able to indicate the result to the calling user.

NOTE 1: Send a **CcbsRequest invoke** to the DLE by using the TCAP primitive **TC-BEGIN request**(TC-INVOKE request).
NOTE 2: Receive a **CcbsRequest return error** from the DLE in a **TC-END indication**(TC-U-ERROR indication).

Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.



1. The access side activates CCBS.
2. The CcbsRequest invocation is received.

TSS CCBS-ASE/	TP ISS_TC_V_15_3	ISUP'97 reference 3.5.1.2.1.1/ EN 300 356-18 [20]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Ability to perform a CCBS CANCEL class 4 operation
To verify that the IUT can successfully perform a deactivation request if required by the calling user:

NOTE: Send a **CcbsCancel invoke** without cancelCause to the DLE by using the TCAP primitive **TC-END request**(TC-INVOKE request).

Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.

```
 access              SPA                    SPB
 ------setup------->  -------IAM-------->
 <----disconnect----  <------REL---------
                      -------RLC-------->   (normal call, user at SPB busy)
                     ... TCAP transaction ...
start CCBS-T1    --
<-CCBS Act request----
--CCBS Act response-->
stop CCBS-T1
start CCBS-T2         xxxxTC_BEGIN_REQxx->
stop CCBS-T2          <--TC_CONTINUE_INDxx
start CCBS-T3
<--CCBS Deact request—
--CCBS Deact response->
                      xxTC_END REQxxxx--->
stop CCBS-T3
```

1. The access side activates and deactivates CCBS.
2. Check that the CcbsRequest invocation is received.

TSS CCBS-ASE/	TP ISS_TC_V_15_4	ISUP'97 reference 3.5.3.1.1/ EN 300 356-18 [20]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Ability to indicate a CCBS recall to the calling user
To verify that the IUT can successfully initiate a CCBS recall to the calling user:

NOTE: Receive a **RemoteUserFree invoke** from the DLE in a **TC-CONTINUE indication**(TC-INVOKE indication).

Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.

```
 access               SPA                    SPB
 -------setup------->   --------IAM-------->
 <-----disconnect----   <-------REL---------
                        --------RLC-------->   (normal call, user at SPB busy)
                        ... TCAP transaction ...
start CCBS-T1    --
<--CCBS Act request---
--CCBS Act response-->
stop CCBS-T1
start CCBS-T2            xxxxTC_BEGIN_REQxxxx-->
stop CCBS-T2             <--TC_CONTINUE_INDxxxx
start CCBS-T3
:
 <---CCBS recall act---
 -----CCBS recall----->   -------IAM------->  CCBS call
 :
 <----disconnect-------   <------REL--------
```

1. The access side activates CCBS request and CCBS recall.
2. Check that the CcbsRequest invocation is received.
3. The user at SPB is now free for a CCBS call.
4. Check that CCBS call with "ISDN User Part required all the way" in the FCI of the IAM.

TSS CCBS-ASE/	TP ISS_TC_I_15_5	ISUP'97 reference 3.5.3.1.1/ EN 300 356-18 [20]	Selection expression OLE	Q.788 [38] reference None

Test purpose

Calling user busy when destination B becomes free

To verify that the IUT can act correctly after receipt of the indication that destination B is free but calling user A is still busy:

NOTE 1: Receive a **RemoteUserFree invoke** from the DLE in a **TC-CONTINUE indication**(TC-INVOKE indication).
NOTE 2: Notify the calling user A.
NOTE 3: Send **CcbsSuspend invoke** in a **TC-CONTINUE request**(TC-INVOKE request) to the DLE.
NOTE 4: Eventually send **CcbsResume invoke** in **TC-CONTINUE request**(TC-INVOKE request) to the DLE if the calling user becomes free.

Pre-test conditions

Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.

```
 access              SPA                  SPB
 -------setup------->  -------IAM-------->
 <----disconnect-----  <------REL---------
                       -------RLC-------->   (normal call, user at SPB busy)
                      ... TCAP transaction ...
start CCBS-T1    --
<--CCBS Act request---
--CCBS Act response-->
stop CCBS-T1
start CCBS-T2           xxxxTC_BEGIN_REQxxxx->
stop CCBS-T2            <--TC_CONTINUE_INDxxxx   CcbsRequest return result
start CCBS-T3
                        <--TC_CONTINUE_INDxxxx   RemoteUserFree
stop CCBS-T3
arrange user to be
found busy              xxxxTC_CONTINUE_REQ-->   CcbsSuspend
or CCBS busy
--Receive notification that
the user at SPB is now free,
--Send no response for that
--User A is now free
                        xxxTC_CONTINUE_REQ-->    CcbsResume
```

1. The access side activates CCBS.
2. Check that the CcbsRequest invocation is received.
3. The user at SPB is now free for a CCBS call.
4. End the TCAP dialogue in order to get an initial state.

TSS CCBS-ASE/	TP ISS_TC_V_15_6	ISUP'97 reference 3.1.3 m)/ EN 300 356-18 [20]	Selection expression Local AND PICS A.18/1	Q.788 [38] reference None

Test purpose
Support of the retain option
To verify that the IUT performs the retain option by setting the **retainSupported** parameter to TRUE or FALSE in the **CcbsRequest** or in the **CcbsRequest return result**.
Pre-test conditions for OLE
Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.

```
Case a)
 access              SPA                  SPB
 ------setup-------->  -------IAM-------->
 <-----disconnect---  <------REL---------
                       -------RLC-------->   (normal call, user at SPB busy)
                        ... TCAP transaction ...
start CCBS-T1    --
<--CCBS Act request---
--CCBS Act response-->
stop CCBS-T1
start CCBS-T2           xxxxTC_BEGIN_REQxxxx->  retainSupported=TRUE
stop CCBS-T2            <--TC_CONTINUE_INDxxxx  retainSupported=TRUE
start CCBS-T3
```

1. The access side activates CCBS.
2. Check that the CcbsRequest invocation is received with "RetainSupported =TRUE".
3. End the TCAP dialogue in order to get an initial state.

```
Case b)
 access             SPA                  SPB
    set the destination
    B busy
                      <-------IAM--------
    user busy         --------REL------->
                      <-------RLC--------
                     ... TCAP transaction ...

                      <--TC_BEGIN_REQxxxx  retainSupported=TRUE
                      xxxTC_CONTINUE_IND-> retainSupported=TRUE
    user free         <-------REL--------
                      --------RLC------->
```

1. UNI at SPA becomes busy.
2. Check that the CcbsRequest invocation is received with "RetainSupported =TRUE".
3. Free destination B.

TSS CCBS-ASE/	TP ISS_TC_V_15_7	ISUP'97 reference 3.5.1.1.1.1/ EN 300 356-18 [20]	Selection expression OLE AND PICS A.18/2	Q.788 [38] reference None

Test purpose

Maximum number of outstanding CCBS requests of a user

To verify that the IUT does not send any **CcbsRequest** to the DLE if the maximum number of outstanding requests is reached.

Pre-test conditions

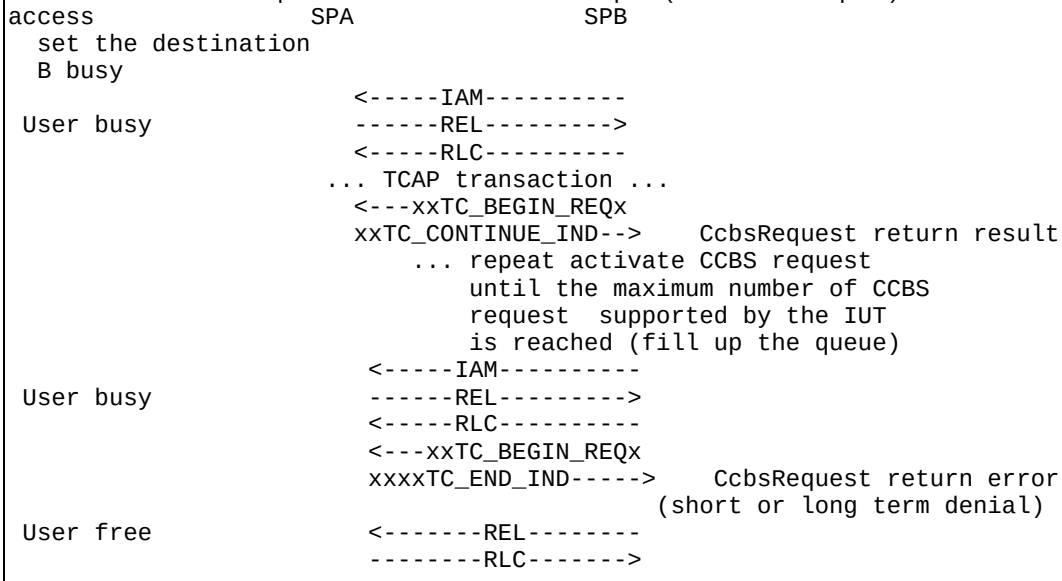
Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.

```
 access               SPA                SPB
 ------setup-------->  -------IAM-------->
 <-----disconnect---   <------REL---------
                       -------RLC-------->   (normal call, user at SPB busy)
                     ... TCAP transaction ...
start CCBS-T1    --
<--CCBS Act request---
--CCBS Act response-->
stop CCBS-T1
start CCBS-T2          xxxxTC_BEGIN_REQxxxx-->
stop CCBS-T2           <--TC_CONTINUE_INDxxxx    CcbsRequest return result
start CCBS-T3
      repeat activate CCBS request until the maximum
      number of CCBS request  supported by SPA
      check that no CCBS request is send after the specified number of entries
```

1. The access side activates CCBS.
2. Check that no TC_BEGIN_REQ is sent after the maximum number of CCBS request is reached at SPA.
3. The test case fails if the maximum number of outstanding requests is reached and CcbsRequest is received.
4. End the TCAP dialogue in order to get an initial state.

TSS CCBS-ASE/	TP ISS_TC_I_15_8	ISUP'97 reference 3.5.1.1.2.2; 3.5.3.5.1; 3.5.5.4/ EN 300 356-18 [20]	Selection expression DLE AND PICS A.18/6	Q.788 [38] reference None

Test purpose
Maximum number of queue entries CCBS requests
To verify that the IUT sends a **CcbsRequest return error** to the OLE if the maximum number of queue entries is reached.
NOTE: Send CcbsRequest return error in TC-END request(TC-INVOKE request).

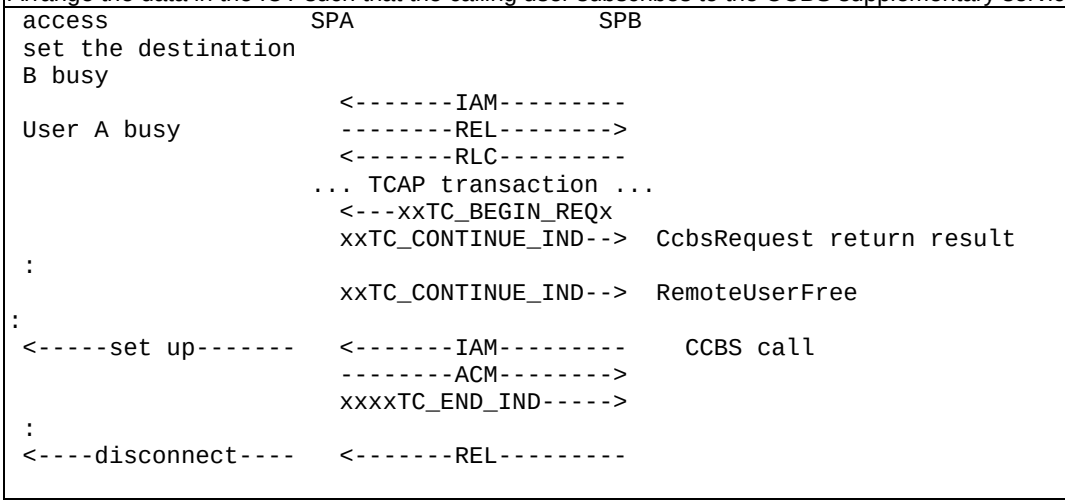


TSS CCBS-ASE/	TP ISS_TC_V_15_9	ISUP'97 reference 3.5.5.4/ EN 300 356-18 [20]	Selection expression Local	Q.788 [38] reference None

Test purpose
Ability to end a dialogue
To verify that the IUT can end a TCAP dialogue after a successful CCBS call.

NOTE: Send a **TC-END request** without component primitive upon sending of the **ACM**, **CPG** or **CON**.

Pre-test conditions for OLE
Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.



1. UNI at SPA becomes busy.
2. Check that a TC_END_IND primitive without component is received in order to end the CCBS operation.

TSS CCBS-ASE/	TP ISS_TC_V_15_10	ISUP'97 reference 3.7.1/ EN 300 356-18 [20]	Selection expression OLE AND PICS A.18/7	Q.788 [38] reference None

Test purpose
Initiate the CCBS supplementary service even if no diagnostics is received in the release message
To verify that the IUT sends a **CcbsRequest invoke** if the calling user activates the CCBS.
Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.

```
 access             SPA                   SPB
 ------setup------->  -------IAM-------->
 <-----disconnect---  <------REL---------
                      -------RLC-------->   (normal call, user at SPB busy)
                   ... TCAP transaction ...
start CCBS-T1    --
<--CCBS Act request---
--CCBS Act response-->
stop CCBS-T1
start CCBS-T2          xxxxTC_BEGIN_REQxxxx-->
stop CCBS-T2           <--TC_CONTINUE_INDxxxx
start CCBS-T3
:
 ----CCBS recall--->   -------IAM------->    CCBS call
 :
 <----disconnect----   <-------REL-------
```

1. The access side activates CCBS.
2. Send a REL without diagnostics "CCBS is possible".
3. Check that the CcbsRequest invocation is received.
4. The user at SPB is now free for a CCBS call.
5. CCBS call set up with "ISDN User Part required all the way" in the FCI of the IAM.

TSS CCBS-ASE/	TP ISS_TC_V_15_11	ISUP'97 reference 3.9.1/ EN 300 356-18 [20]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Support of the retention timer CCBS-T1
To verify that the retention timer CCBS-T1 can be started after receive of a **release message** with cause value #17 or #34 from the DLE and stopped normally after activation of the CCBS supplementary service by the calling user.
Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.

```
 access             SPA                   SPB
 ------setup------->  -------IAM-------->
 <-----disconnect---  <------REL---------
                      -------RLC-------->   (normal call, user at SPB busy)
                                            SPB starts CCBS-T1 and receives
                                            nothing until the timer expires
<------facility-------
         Act CCBS
start CCBS-T1
send nothing until it expires
```

1. The access side activates CCBS after CCBS-T1 runs out.
2. Check that no CCBS request is stored in the queue.

TSS CCBS-ASE/	TP ISS_TC_V_15_12	ISUP'97 reference 3.5.5.4.1 c); 3.9.1/ EN 300 356-18 [20]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Support of the CCBS request operation timer CCBS-T2
To verify that the timer CCBS-T2 can be started after sending of a **CcbsRequest** to the DLE and stopped normally after receipt of **CcbsRequest return result** from the DLE.

NOTE: If the timer expires a **TC-END** with **TC-L-CANCEL** indication primitive is received from the DLE and the service request is rejected.

Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.

```
 access                          SPA                                  SPB
 ------setup------->  -------IAM-------->
 <----disconnect----  <------REL---------
                      -------RLC-------->   (normal call, user at SPB busy)
                   ... TCAP transaction ...
start CCBS-T2          xxxTC_BEGIN_REQ-->     SPB starts CCBS-T2 and sends
                       <--TC_ENDxxxxxxxxxx    TC_END_IND if the timer expires
```

1. The access side activates CCBS.
2. End the TCAP dialogue in order to get an initial state.

TSS CCBS-ASE/	TP ISS_TC_I_15_13	ISUP'97 reference 3.5.1.2.1.2/ EN 300 356-18 [20]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Support of the CCBS service duration timer CCBS-T3
To verify that the IUT can successfully deactivate a CCBS request if the CCBS service duration timer CCBS-T3 expires.

NOTE: Send a **CcbsCancel invoke** with cancelCause to the DLE by using the TCAP primitive **TC-END request**(TC-INVOKE request) with cancelCause "CCBS-T3 Timeout".

Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.

```
 access              SPA                                  SPB
 ------setup------->  -------IAM-------->
 <-----disconnect---  <------REL---------
                      -------RLC-------->   (normal call, user at SPB busy)
                     ... TCAP transaction ...
start CCBS-T2          xxxxTC_BEGIN_REQ-->     CcbsRequest invoke
stop CCBS-T2           <---TC_CONT_INDxxxx     CcbsRequest return result
start CCBS-T3
starts CCBS-T3 and sends TC_CONTINUE_IND with RemoteUserFree if it expires
                       <---TC_CONT_INDxxxxx     RemoteUserFree
                       xxxxxTC_END_REQ---->   TC_END_IND with CancelCause
"timeout CCBS-T3"
```

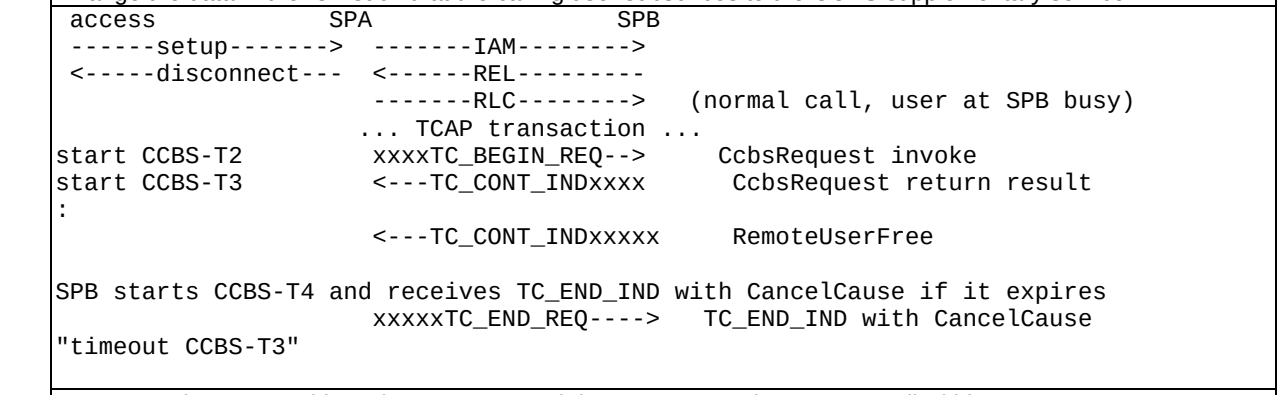
1. The access side activates CCBS.
2. After CCBS-T3 timer expiry the IUT shall send the CancelCause "CCBS-T3 timeout" in a TC_END.

TSS CCBS-ASE/	TP ISS_TC_I_15_14	ISUP'97 reference 3.5.1.2.1.2 ii); 3.9.1/ EN 300 356-18 [20]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Support of the CCBS recall timer CCBS-T4
To verify that the timer CCBS-T4 can be stopped after receiving an indication from the user for a CCBS recall.

NOTE: CCBS-T4 contains the maximum time the network will wait for the calling user A to respond to a CCBS recall. The OLE sends a **CcbsCancel invoke** in **TC-END request** to the DLE in case of CCBS-T4 expiry.

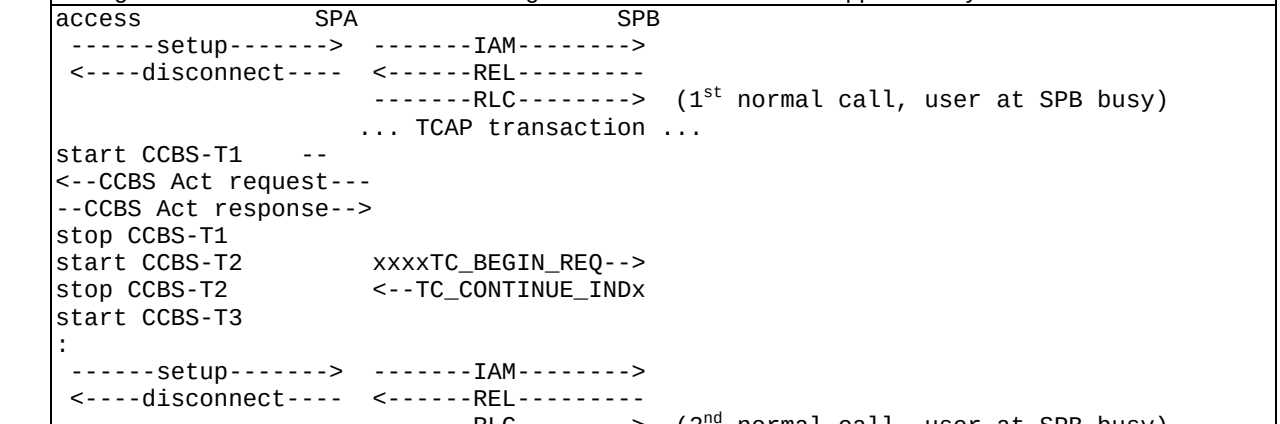
Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.



1. The access side activates CCBS and does not accept the CCBS recall within CCBS-T4.
2. Check that the CancelCause "CCBS-T4 timeout" is received in a TC_END.

TSS CCBS-ASE/	TP ISS_TC_I_15_15	ISUP'97 reference 3.5.3.1.2 b) i)/ EN 300 356-18 [20]	Selection expression OLE AND PICS A.18/5	Q.788 [38] reference None

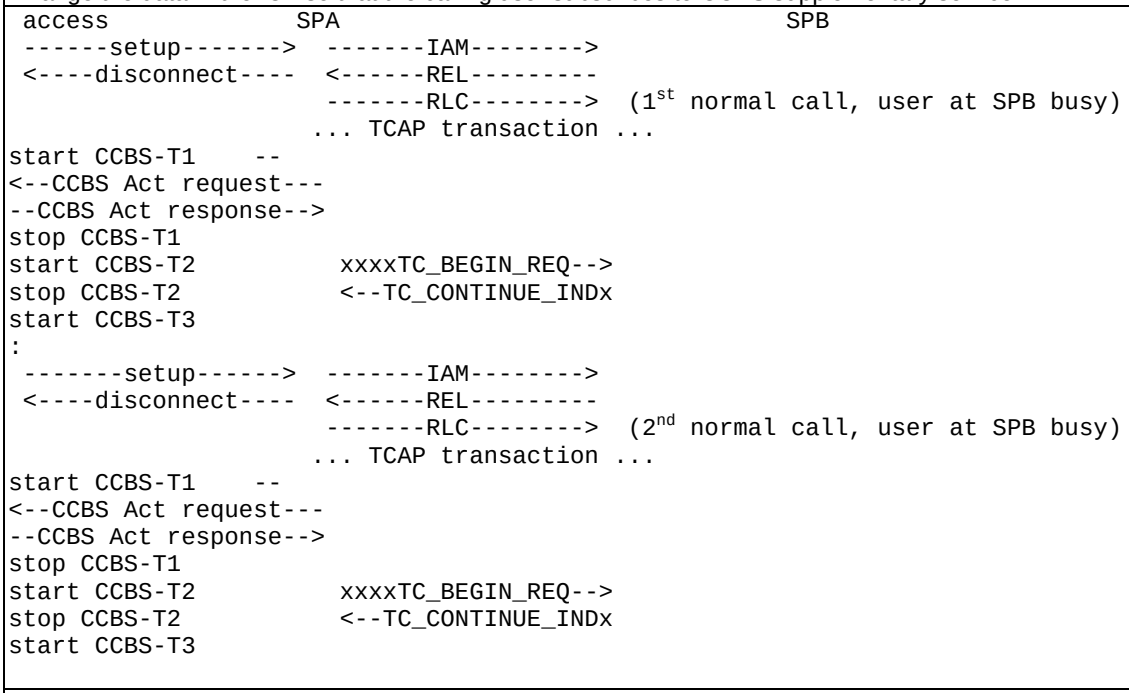
Test purpose
Reject a second identical activation of CCBS
To verify that the IUT does not send any CcbsRequest to the DLE if a second identical activation of CCBS is done.
Pre-test conditions
Arrange the data in the IUT so that the calling user subscribes to CCBS supplementary service.



1. The access side activates CCBS.
2. First call to busy user at SPB.
3. Check that the CcbsRequest invocation is received.
4. Second identical call from the IUT to the same SPB.
5. End the TCAP dialogue.

TSS CCBS-ASE/	TP ISS_TC_I_15_16	ISUP'97 reference 3.5.3.1.2 b) ii)/ EN 300 356-18 [20]	Selection expression OLE AND PICS A.18/4	Q.788 [38] reference None

Test purpose
Treat a second identical activation of CCBS as a new request
To verify that the IUT treats a second identical activation of CCBS as a new request.
Pre-test conditions
Arrange the data in the IUT so that the calling user subscribes to CCBS supplementary service.



1. The access side activates CCBS.
2. First call to busy user at SPB.
3. Check that the CcbsRequest invocation is received.
4. Second identical call from the IUT to the same SPB.
5. Second identical activation of the CCBS request.
6. End the TCAP dialogue.

TSS CCBS-ASE/	TP ISS_TC_I_15_17	ISUP'97 reference 3.5.1.2.2.2/ EN 300 356-18 [20]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Support of the CCBS service supervision timer CCBS-T7
To verify that the IUT deactivates the CCBS-request if CCBS-T7 expires.

NOTE 1: CCBS-T7 is started after sending a **CcbsRequest return result** to the OLE.
NOTE 2: CCBS-T7 is stopped after the destination B becomes not busy, before sending **RemoteUserFree** to the OLE.
NOTE 3: Send a **CcbsCancel invoke** in a **TC-END request**(TC-INVOKE request) with cancelCause "CCBS-T7 Timeout".

```
 access                SPA                SPB
 set the destination
 B busy
                       <-----IAM----------
 user busy             ------REL--------->
                       <-----RLC----------
                       ... TCAP transaction ...
                       <---xxTC_BEGIN_REQx
                       xxTC_CONTINUE_IND-->  CcbsRequest return result
SPB starts CCBS-T7 and receives TC_END_IND with CancelCause
"CCBS-T7 Timeout" if it expires
                       xxxxxTC_END_IND--->
    user free          <-------REL--------
                       --------RLC------->
```

TSS CCBS-ASE/	TP ISS_TC_I_15_18	ISUP'97 reference 3.5.3.1.5 a); 3.9.1/ EN 300 356-18 [20]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Support of the destination B idle guard timer CCBS-T8
To verify that no resources are available at the destination B side until timer CCBS-T8 expires.

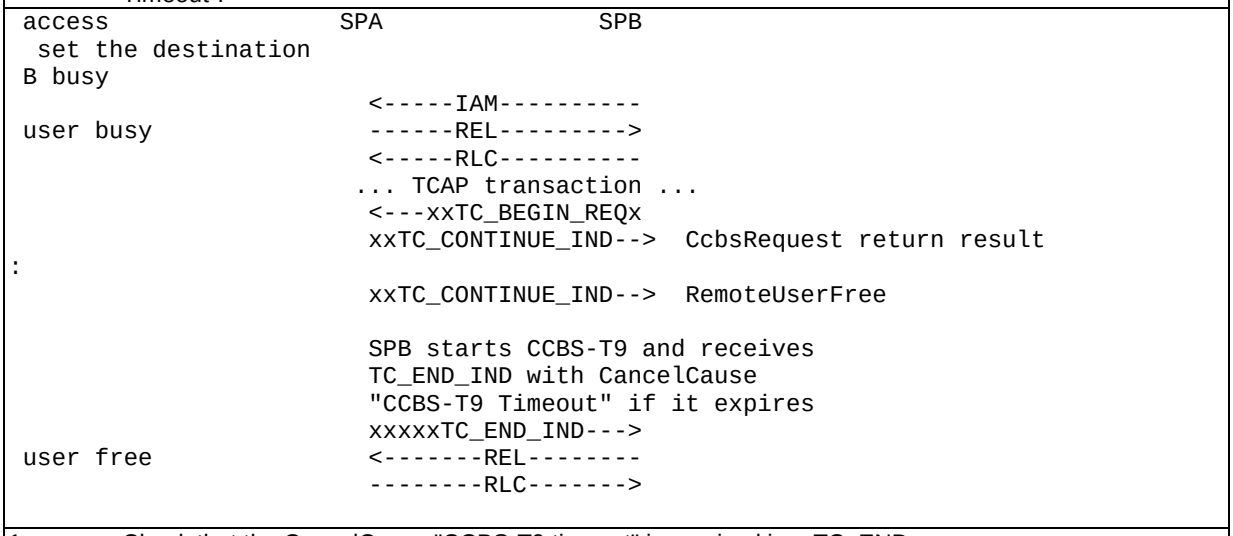
```
 access               SPA                      SPB
 set the destination
 B busy
                       <--------IAM----------
 user busy             ---------REL--------->
                       <--------RLC----------
                      ... TCAP transaction ...
                       <---xxTC_BEGIN_REQx    CcbsRequest
                       xxTC_CONTINUE_IND-->   CcbsRequest return result
:
User is now free       SPB starts timers CCBS-T8
                       SPB checks every second that no resources
                       are available by using T_LOCAL timer
                       <--------IAM----------
                       ---------REL--------->
                       <--------RLC----------
:
<-------setup-------   <--------IAM----------   CCBS-T8 expires
--------alert------>   ---------ACM--------->
-------connect----->   ---------ANM--------->
```

1. Check that no resources are available within CCBS-T8, e.g., send an IAM and receiving a REL.
2. Check that resources are now available by sending an IAM and receiving an ACM, etc.

TSS CCBS-ASE/	TP ISS_TC_V_15_19	ISUP'97 reference 3.5.3.5.2 d); 3.9.1/ EN 300 356-18 [20]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Support of the DLE recall timer CCBS-T9
To verify that the timer CCBS-T9 can be started after sending of a **TC-CONTINUE** with **RemoteUserFree** from the DLE and stopped after CCBS call is received from the OLE.

NOTE: Send a **CcbsCancel invoke** in a **TC-END request**(TC-INVOKE request) with cancelCause "CCBS-T9 Timeout".

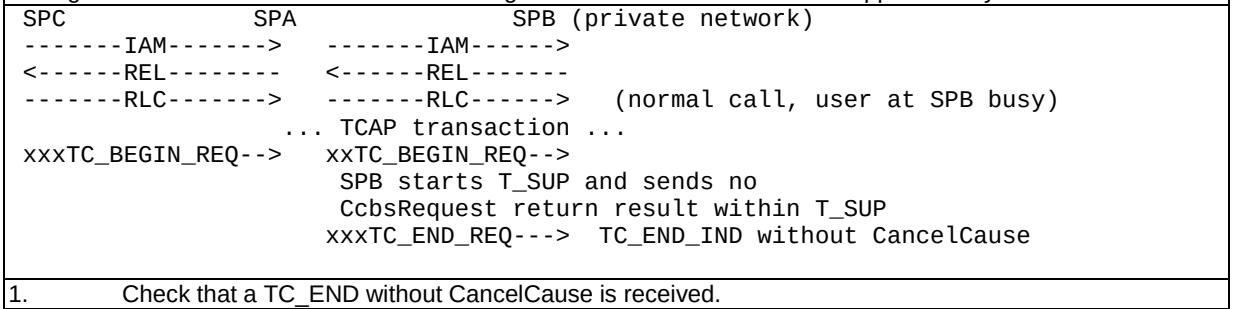


TSS CCBS-ASE/	TP ISS_TC_I_15_20	ISUP'97 reference 3.7.7.3.3.1; 3.7.7.3.3.2; 3.9.3/ EN 300 356-18 [20]	Selection expression Local AND PICS A.18/19	Q.788 [38] reference None

Test purpose
Support of the interworking supervision timer T_{SUP}
To verify that the timer T_{SUP} is used correctly in case of interworking with a private network.

NOTE 1: The DLE sends a **CcbsCancel invoke** in **TC-END request** to the OLE without cancelCause in case of T_{SUP} timer expiry.
NOTE 2: The OLE sends a **CcbsCancel invoke** in **TC-END request** to the DLE without cancelCause in case of T_{SUP} timer expiry.

Pre-test conditions for OLE
Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.



TSS CCBS-ASE/	TP ISS_TC_I_15_21	ISUP'97 reference 3.5.1.1.1.1/ EN 300 356-18 [20]	Selection expression OLE	Q.788 [38] reference None

Test purpose
CCBS REQUEST not invoked
To verify that if a call is released with a cause other than #17 or #34, then no CCBS REQUEST shall be sent from the OLE to the DLE
Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCBS supplementary service.

```
access              SPA                    SPB
------setup-------> -------IAM---------->
<-----disconnect--- <------REL----------
                    -------RLC--------->
```

1. The access side shouldn't activate CCBS.
2. Release call with a cause other than #17 or #34.

6.2.16 Three party service (3PTY)

TSS THREE_PTY/	TP ISS_V_16_1	ISUP'97 reference 2.4; 2.2.1/ EN 300 356-19 [21]	Selection expression Local	Q.788 [38] reference 2.14.1

Test purpose
Served user initiates 3PTY
To verify that the IUT, where the served user with two active calls is located, can successfully join these calls to form a three-way conversation, and notify the implied remote parties accordingly.
The IUT should send **CPG** messages with the **generic notification indicator** set to "conference established" to both implied parties. The **event indicator** in the **CPG** should be set to "progress".
The notification should be independent of the call set up direction of the two calls; i.e. it should apply to all of the following scenarios:
A -->B ; A<-- B ; A -->B ; A<-- B
A -->C ; A -->C ; A<--C ; A<-- C
Pre-test conditions
Arrange the data in the IUT such that the served user subscribes to the 3PTY and HOLD supplementary services.

```
SPC               SPA                SPB
                     -------IAM------>
                     <------ACM-------
                     <------ANM-------
                     -------CPG------>  check held state
 <-----IAM-------
 ------ACM------>
 ------ANM------>
 <-----CPG-------   -------CPG------>
      conf est           conf est
        ... 3PTY communication ...
<-----CPG-------   <------REL-------
        conf disc   -------RLC------>
 <-----REL-------
 ------RLC------>
```

1. Set up a first call from SPA to SPB and put it on hold.
2. Set up a second call from SPA to SPC.
3. Join the two calls into a 3PTY communication and check "conference established" in the CPG.
4. Check the 3PTY communication through the three-party bridge between users from UNI at SPB and SPC.
5. Release the call from UNI at SPB.

TSS THREE_PTY/	TP ISS_V_16_2	ISUP'97 reference 2.5.2.1.1.3 a)/ EN 300 356-19 [21]	Selection expression Local	Q.788 [38] reference 2.14.1

Test purpose

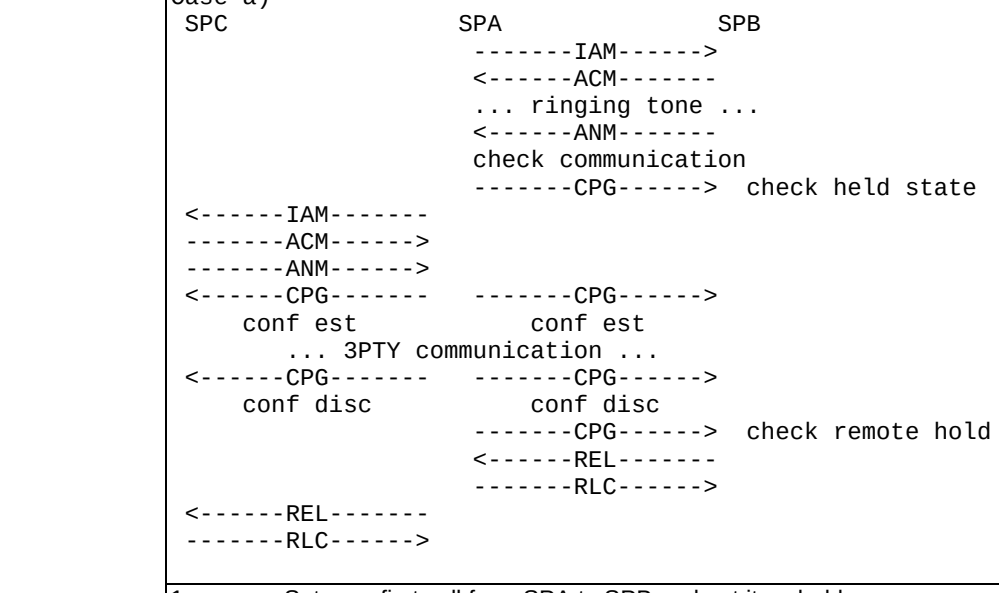
Served user creates a private communication with a remote user

To verify that the IUT (controlling the conference) on a 3PTY call can successfully create private communication with one of the remote users. The appropriate notification (depending on A-B active-held or A-C active-idle connection) is sent in **CPG** messages to the two users.

Pre-test conditions

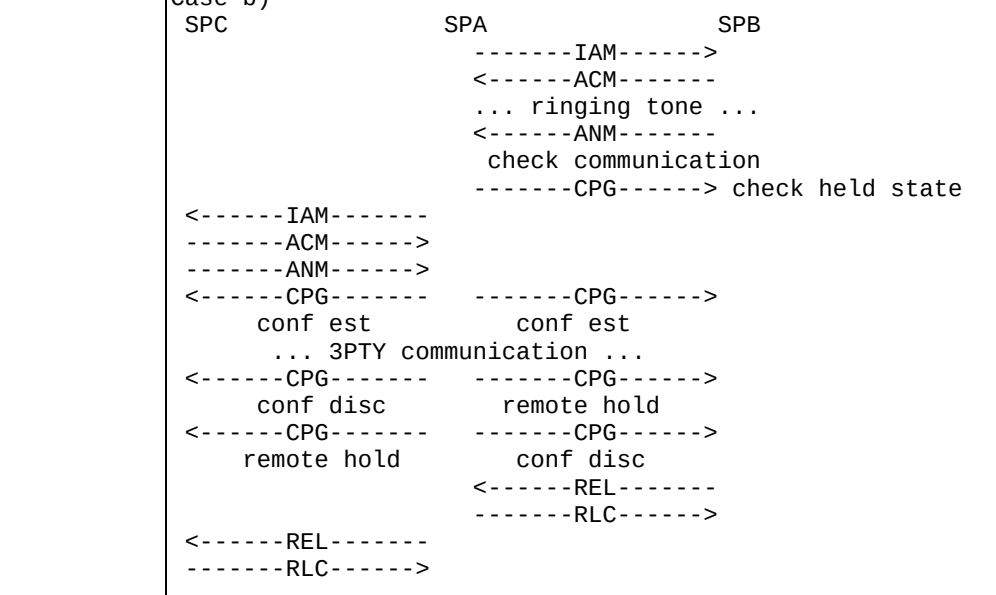
Arrange the data in the IUT such that the served user subscribes to the 3PTY and HOLD supplementary services.

Case a)



1. Set up a first call from SPA to SPB and put it on hold.
2. Set up a second call from SPA to SPC.
3. Join the two calls into a 3PTY communication and check "conference established" in the CPG.
4. Check the 3PTY communication towards each party.
5. Disconnect the 3PTY call.
6. Check the held state at SPB.
7. Release the held call.

Case b)



1. Set up a first call from SPA to SPB and put it on hold.
2. Set up a second call from SPA to SPC.
3. Join the two calls into a 3PTY communication and check "conference established" in the CPG.
4. Check the 3PTY communication towards each party.
5. Check "Remote hold" at SPB with which private communication is required.
6. Check "conference disconnected" after retrieving the held call.
7. Release the retrieved call.

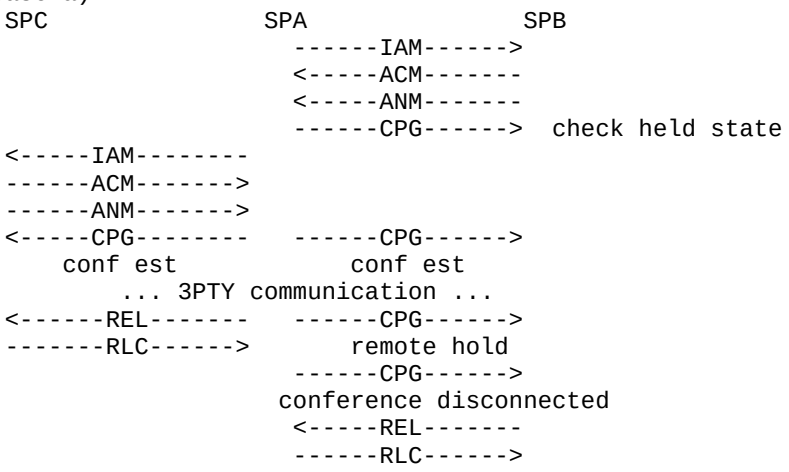
TSS THREE_PTY/	TP ISS_V_16_3	ISUP'97 reference 2.5.2.1.1.3 b)/ EN 300 356-19 [21]	Selection expression Local	Q.788 [38] reference 2.14.2

Test purpose
Served user disconnects one remote user and retains the other
To verify that the IUT (controlling the conference) on a 3PTY call can successfully disconnect one remote user and retain and notify the other user appropriately using **CPG** messages.
The IUT should send to the appropriate remote users **CPG** messages with a **generic notification indicator** (depending on A-B active-held or A-C active-idle connection). The **event indicator** in the **CPG** should be set to "progress".

NOTE: The "remote hold" notification should be sent in a **CPG** to the remaining remote user, followed by the "conference disconnected" notification in a separate **CPG**.

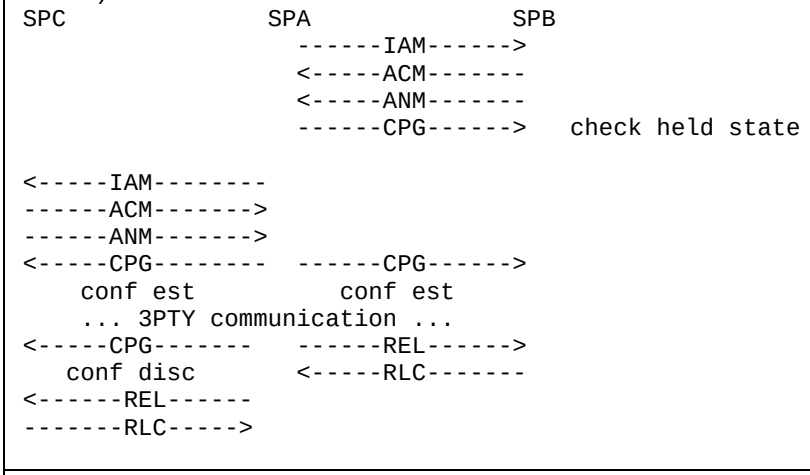
Pre-test conditions
Arrange the data in the IUT such that the served user has activated 3PTY and HOLD supplementary services.

Case a)



1. Set up a first call from SPA to SPB and put it on hold.
2. Set up a second call from SPA to SPC.
3. Join the two calls into a 3PTY communication and check "conference established" in the CPG.
4. Check the 3PTY communication towards each party.
5. Check "Remote hold" at SPB after.
6. Check "conference disconnected" after retrieving the held call.

Case b)



1. Set up a first call from SPA to SPB and put it on hold.
2. Set up a second call from SPA to SPC.
3. Join the two calls into a 3PTY communication and check "conference established" in the CPG.
4. Check the 3PTY communication towards each party.
5. The user at SPB is released with Cause #16 - Normal call clearing.

TSS THREE_PTY/	TP ISS_V_16_4	ISUP'97 reference 2.5.2.1.1.3/ EN 300 356-19 [21]	Selection expression Local	Q.788 [38] reference 2.14.4

Test purpose

Served user disconnects both remote users and terminates the call

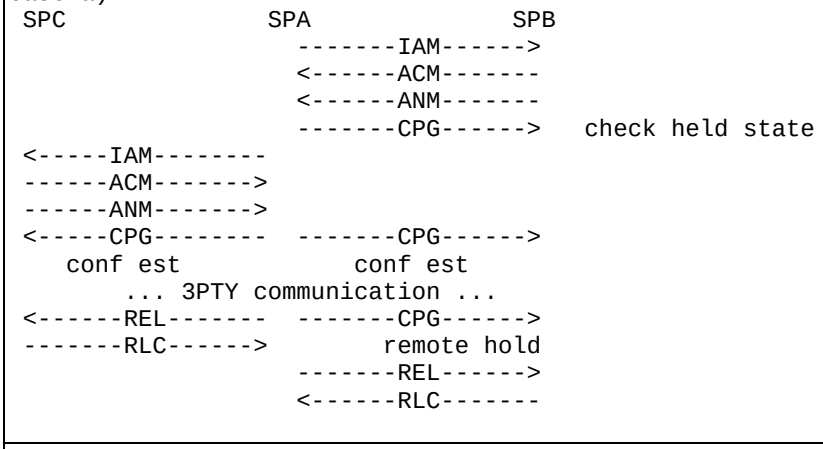
To verify that the IUT (controlling the conference) can send the appropriate notification to the two remote users when disconnecting both remote users on the 3PTY call.

The IUT should send to the appropriate remote users a **CPG** with a **generic notification indicator** (depending on A-B active-held or A-C active-idle connection). The **event indicator** in the **CPG** is set to "progress".

Pre-test conditions

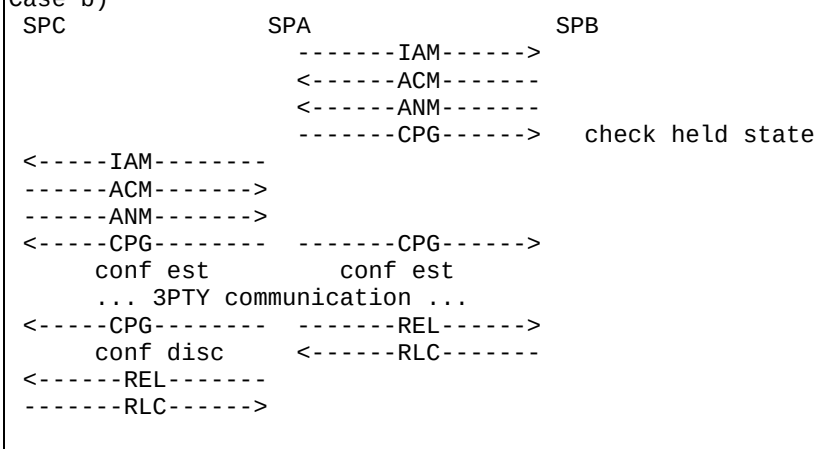
Arrange the data in the IUT such that the served user has activated 3PTY and HOLD supplementary services.

Case a)



1. Set up a first call from SPA to SPB and put it on hold.
2. Set up a second call from SPA to SPC.
3. Join the two calls into a 3PTY communication and check "conference established" in the CPG.
4. Check the 3PTY communication towards each party.
5. Check "Remote hold" as a reaction to first releasing user at SPC.
6. Check that Release is received at SPB with Cause #16 - Normal call clearing.

Case b)



1. Set up a first call from SPA to SPB and put it on hold.
2. Set up a second call from SPA to SPC.
3. Join the two calls into a 3PTY communication and check "conference established" in the CPG.
4. Check the 3PTY communication towards each party.
5. Check that Release is received at SPB with Cause #16 - Normal call clearing.

TSS THREE_PTY/	TP ISS_V_16_5	ISUP'97 reference 2.2.1/ EN 300 356-19 [21]	Selection expression Local	Q.788 [38] reference 2.14.3

Test purpose

Remote user disconnects 3PTY call

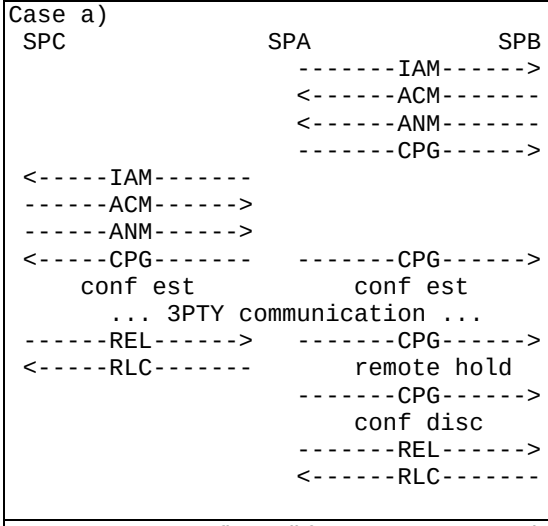
To verify that the IUT (controlling the conference) can successfully continue the 3PTY call after receiving disconnection by one of the remote users, and send the appropriate notification to the remaining party.
The IUT should send to the other remote user **CPG** with a **generic notification indicator** (depending on A-B active-held or A-C active-idle connection). The **event indicator** in the **CPG** is set to "progress".

NOTE: The "remote hold" notification should be sent in a **CPG** to the other remote user, followed by the "conference disconnected" notification in a separate **CPG**.

Pre-test conditions

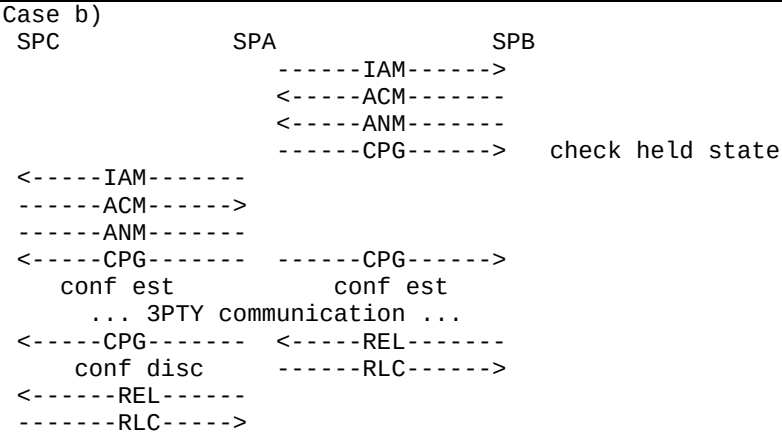
Arrange the data in the IUT such that the served user has activated 3PTY and HOLD supplementary services.

Case a)



1. Set up a first call from SPA to SPB and put it on hold.
2. Set up a second call from SPA to SPC.
3. Join the two calls into a 3PTY communication and check "conference established" in the CPG.
4. Check the 3PTY communication towards each party.
5. Check "Remote hold" indication at SPB.
6. Check "conference disconnected" after retrieving the held call.
7. Check that Release is received at SPB with Cause #16 - Normal call clearing.

Case b)

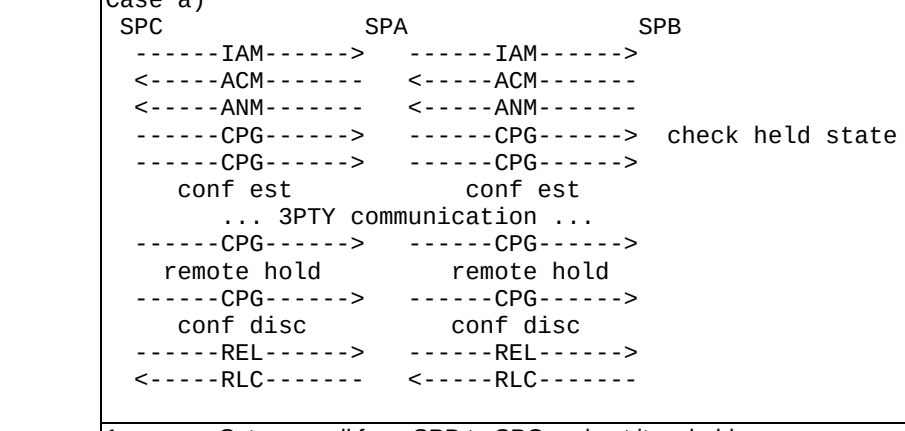


1. Set up a first call from SPA to SPB and put it on hold.
2. Set up a second call from SPA to SPC.
3. Join the two calls into a 3PTY communication and check "conference established" in the CPG.
4. Check the 3PTY communication towards each party.
5. User at SPB disconnects with Cause #16 Normal call clearing.

TSS THREE_PTY/	TP ISS_V_16_6	ISUP'97 reference 2.5.2.2-4.1; Table 2-1/ EN 300 356-19 [21]	Selection expression IntermE	Q.788 [38] reference 2.14.1

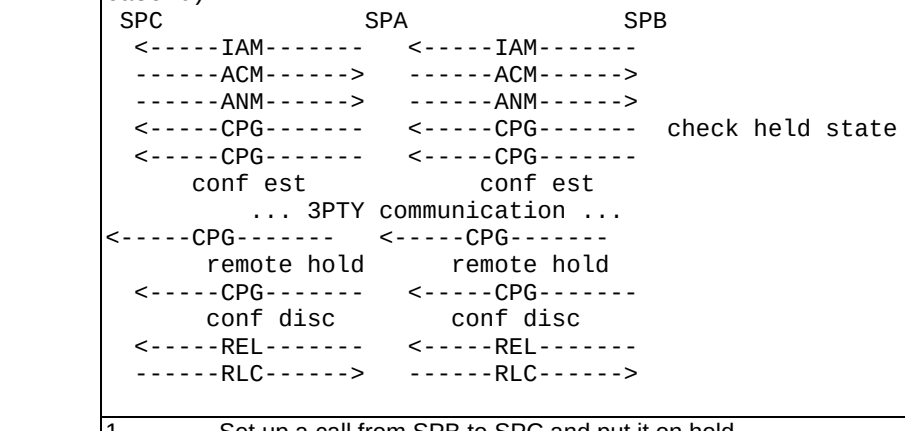
Test purpose
Transit support of 3PTY
To verify that the IUT can transparently transfer all information related to 3PTY.
The IUT should be able to transparently transfer the **CPG** message with the following notifications in the **generic notification indicator** in both the forward and the backward direction :
1) "Conference established"
2) "Conference disconnected"
3) "Remote hold"

Case a)



1. Set up a call from SPB to SPC and put it on hold.
2. Check "conference established" indication in the CPG.
3. Check through-connection of the speech path.
4. Check "remote hold" indication at SPB.
5. Check "conference disconnected" indication.

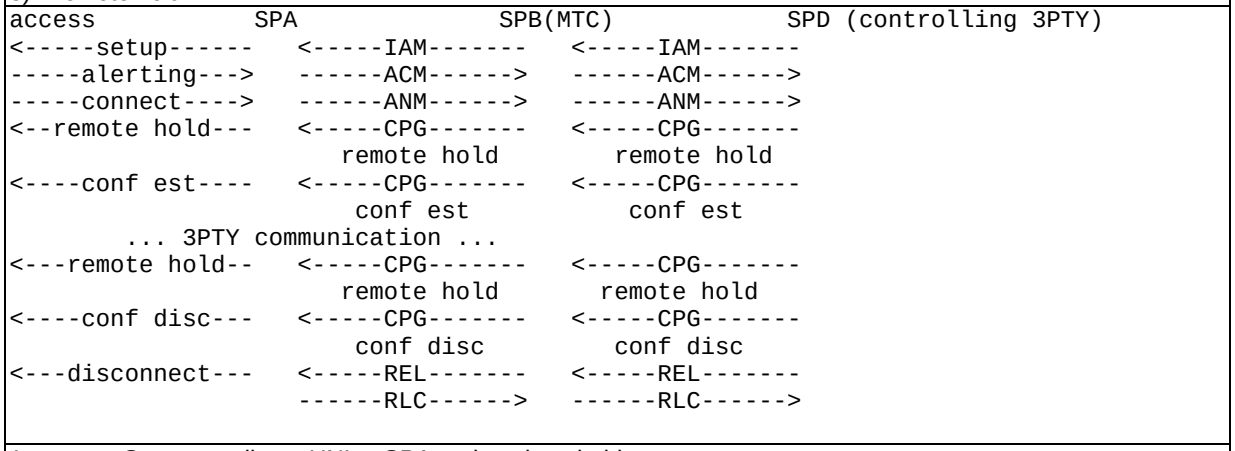
Case b)



1. Set up a call from SPB to SPC and put it on hold.
2. Send "conference established" indication in the CPG.
3. Check through-connection of the speech path.
4. Send "remote hold" indication from SPB.
5. Send "conference disconnected" indication.

TSS THREE_PTY/	TP ISS_V_16_7	ISUP'97 reference 2.5.2.5.1; Table 2-1/ EN 300 356-19 [21]	Selection expression DLE	Q.788 [38] reference 2.14.1

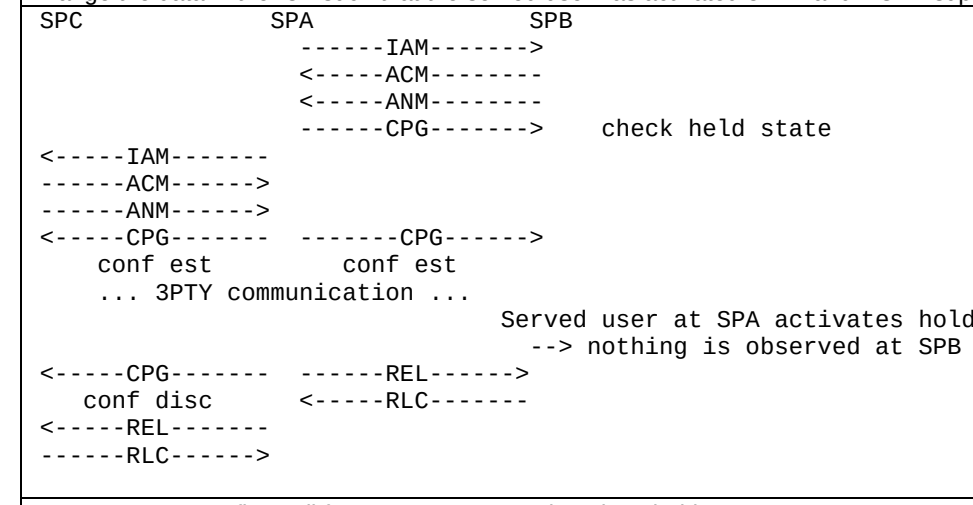
Test purpose
Remote user included in 3PTY
To verify that the IUT can receive the notification information related to 3PTY, and pass it on to the access signalling system
The IUT should be able to transparently transfer the **CPG** message with the following notifications in the **generic notification indicator** in both the forward and the backward direction :
1) "Conference established"
2) "Conference disconnected"
3) "Remote hold"



1. Set up a call to a UNI at SPA and put it on hold.
2. Assist call set up to the access observe the indications: "conference established", "conference disconnected and "remote hold".
3. The 3PTY served user starts the 3PTY conversation.
4. Check the 3PTY communication towards the remote party.
5. Send "remote hold" indication to the remote party, sign that the other party has been disconnected.
6. Send "conference disconnected', sign that the remote user has been retrieved.
7. Check that communication is possible and release the call.

TSS THREE_PTY/	TP ISS_V_16_8	ISUP'97 reference 2.6.15/ EN 300 356-19 [21]	Selection expression Local	Q.788 [38] reference None

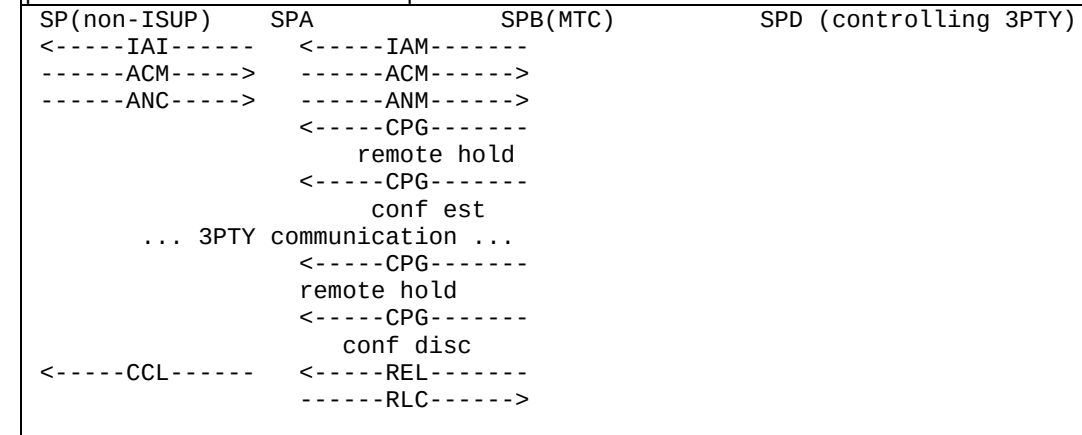
Test purpose
Served user initiates 3PTY; interaction with HOLD
To verify that the IUT does not send any notifications to the remote users by request of HOLD by the served user during the 3PTY conversation active phase.
Pre-test conditions
Arrange the data in the IUT such that the served user has activated 3PTY and HOLD supplementary services.



1. Set up a first call from SPA to SPB and put it on hold.
2. Set up a second call from SPA to SPC.
3. Join the two calls into a 3PTY communication and check "conference established" in the CPG.
4. Check the 3PTY communication towards each party.
5. Check that no notification of call Hold is received at SPC.

TSS THREE_PTY/	TP ISS_V_16_9	ISUP'97 reference 2.7/ EN 300 356-19 [21]	Selection expression IWorkE	Q.788 [38] reference None

Test purpose
3PTY; interaction with other networks
To verify that the IUT will discard the call progress information in case of interaction with network which does not provide it. The 3PTY should be completed.

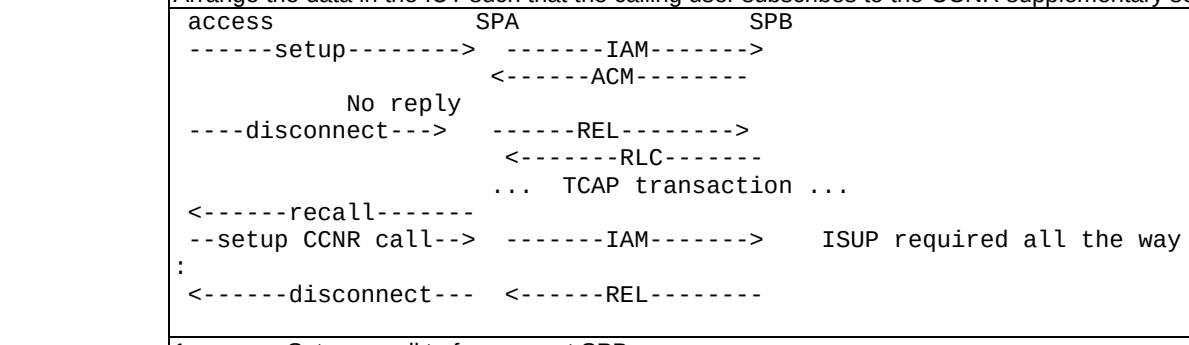


1. Set up a call from SPB to a non-ISUP destination at SPC and put it on hold.
2. Send "conference established" indication in the CPG.
3. Check through-connection of the speech path.
4. Send "remote hold" indication from SPB.
5. Send "conference disconnected" indication.

6.2.17 Completion of calls on No Reply (CCNR)

TSS CCNR-ISUP/	TP ISS_V_17_1_1	ISUP'97 reference 4.2.1.1; 5.3.1.1/ Q.733.5 [28]	Selection expression OLE	Q.788 [38] reference None

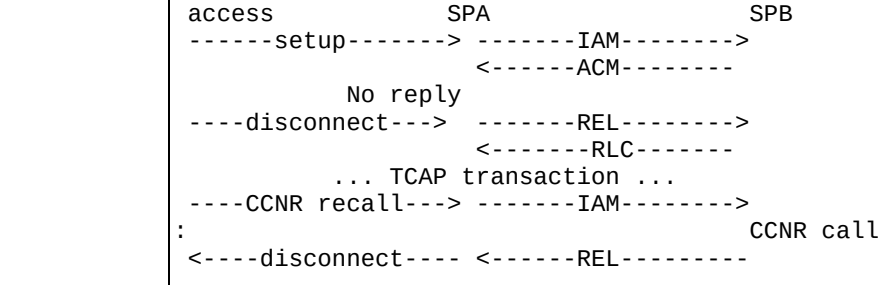
Test purpose
ISUP Preference Indicator in the CCNR call
To verify that for the CCNR call, the IUT sets the ISUP preference indicator in the **forward call indicator** parameter in the **IAM** to "ISDN User Part required all the way".
Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.



1. Set up a call to free user at SPB.
2. User at SPB has no reply.
3. Check that user at SPB becomes free by using the RemoteUserFree CCNR ASE operation.
4. CCNR call with "ISDN User Part required all the way" in the FCI of the IAM.

TSS CCNR-ISUP/	TP ISS_V_17_1_2	ISUP'97 reference 4.2.1.3/Q.733.5 [28]	Selection expression OLE	Q.788 [38] reference None

Test purpose
CCNR parameter in the CCNR call
To verify that for the CCNR call, the IUT includes in the **IAM** the CCNR call indicator in the **CCSS parameter** coded as "CCSS call".
Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.



1. Set up a call to free user at SPB.
2. User at SPB has no reply.
3. Check that user at SPB becomes free by using the RemoteUserFree CCNR ASE operation.
4. Check Indication "CCSS call" in the IAM.

TSS CCNR-ISUP/	TP ISS_V_17_1_3	ISUP'97 reference 5.1.1.1.1/Q.733.5 [28]	Selection expression OLE	Q.788 [38] reference None

Test purpose

CCNR call with retained basic call information

To verify that for the CCNR call, the IUT includes the retained call information in the **IAM**:

User service information;

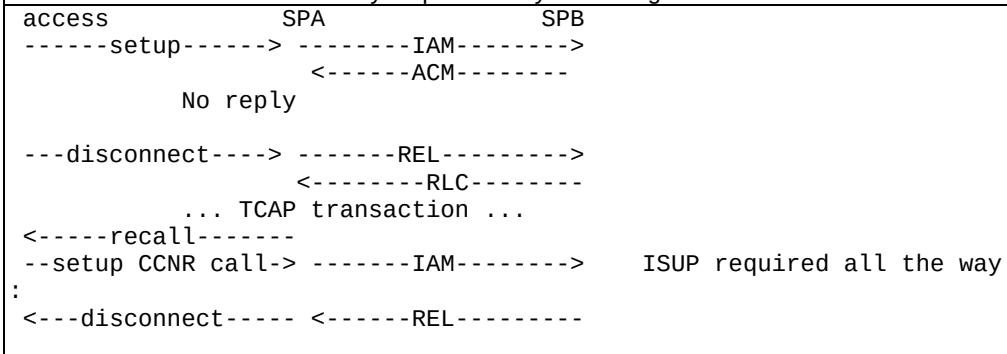
User service information prime;

Access transport (e.g. called party sub-address);

Called party number.

Pre-test conditions

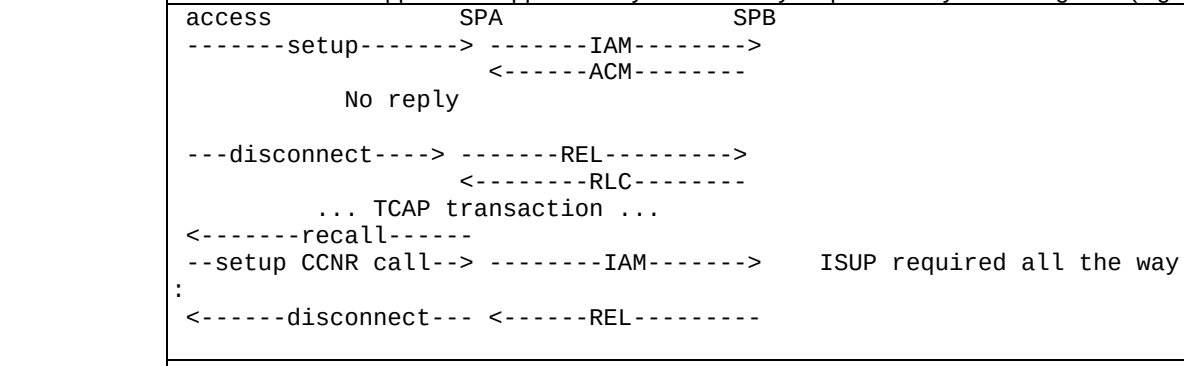
Arrange the data in the IUT such that the calling user subscribes to the CCNR and such that the relevant call information that is to be tested may be provided by the calling user.



1. Set up a call with USI, USIp, ATP and/or CdPN, which encounters user at SPB no answer, activates TCAP and terminates the call.
2. User at SPB is free.
3. Check that user at SPB becomes free by using the RemoteUserFree CCNR ASE operation.
4. CCNR call with "ISDN User Part required all the way" in the FCI of the IAM. The retained call information about ATP, USI, USIp and CdPN shall be checked too.

TSS CCNR-ISUP/	TP ISS_V_17_1_4	ISUP'97 reference 5.1.1.1.1/Q.733.5 [28]	Selection expression OLE AND PICS A.19/3	Q.788 [38] reference None

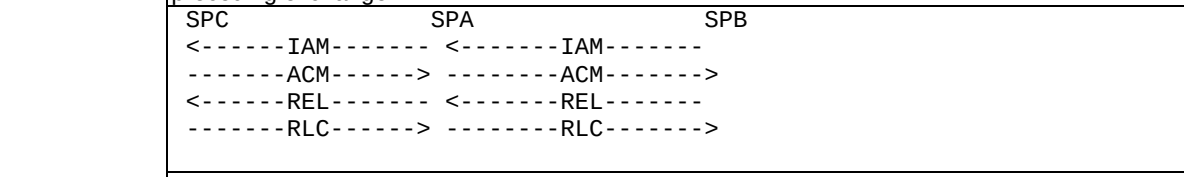
Test purpose
CCNR call with retained call information & interactions with other supplementary services
To verify that for the CCNR call, the IUT includes the retained call information in the IAM:
Calling party number (if supported);
Access transport (e.g. calling party sub-address if supported);
UUS1,2,3 (retained request if supported);
UUS1 (information given by user in response to CCNR recall, if supported);
Optional forward call indicator (with COLP request).
Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCNR and such that the relevant call information for the applicable supplementary services may be provided by the calling user (e.g. SUB, COLP).



1. Set up a call with Calling party number (if supported) ATP (e.g. calling party sub-address if supported); UUS1, 2, 3 (retained request if supported) UUS1 (information given by user in response to CCNR recall, if supported) OFCI (with COLP request) which encounters user at SPB with no answer, activates TCAP and terminate the call.
2. User at SPB is free.
3. Check that user at SPB becomes free by using the RemoteUserFree CCNR ASE operation.
4. CCNR call with "ISDN User Part required all the way" in the FCI of the IAM. The retained call information. about ATP, UUS1,2,3 request, UUI in CCNR recall and CdPN shall be checked too.

TSS CCNR-ISUP/	TP ISS_V_17_1_5	ISUP'97 reference 5.3.2.1; 5.3.3.1; 5.3.4.1/Q.733.5 [28]	Selection expression IntermE	Q.788 [38] reference None

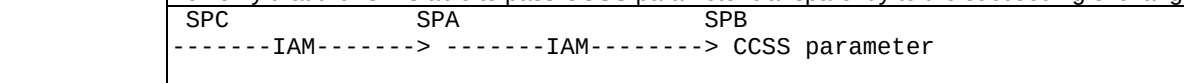
Test purpose
Transit support of CCNR Possible Indicator parameter
To verify that the IUT is able to pass the CCNR Possible Indicator parameter in the ACM/CPG transparently to the preceding exchange.



1. Check CCNR Possible Indicator parameter in the ACM/CPG.

TSS CCNR-ISUP/	TP ISS_V_17_1_6	ISUP'97 reference 5.3.2.1; 5.3.3.1; 5.3.4.1/Q.733.5 [28]	Selection expression IntermE	Q.788 [38] reference None

Test purpose
Transit support of CCSS parameter in IAM
To verify that the IUT is able to pass CCSS parameter transparently to the succeeding exchange.



1. Set up a CCNR call to user at SPB.
2. Check that CCSSpar is received.

TSS CCNR-ISUP/	TP ISS_V_17_1_7	ISUP'97 reference 4.2.1.2/Q.733.5 [28]	Selection expression DLE	Q.788 [38] reference None

Test purpose
CCNR possible to destination B
To verify that the IUT is able to generate in a **ACM/CPG** message the field containing a CCNR possible indicator with a "CCNR possible" indication.

```
access              SPA                 SPB
set the destination
B user free
                     <------IAM--------
                     -------ACM------->
No reply

                     <------REL--------
                     -------RLC------->
 <---disconnect----
```

1. UNI at SPA no answer.
2. Check that "CCNR possible" is received in the ACM/CPG message.
3. Release the call.

TSS CCNR-ISUP/	TP ISS_V_17_1_8	ISUP'97 reference 4.2.1.3/Q.733.5 [28]	Selection expression DLE	Q.788 [38] reference None

Test purpose
CCNR parameter in the CCNR call
To verify that the IUT is able to terminate the CCNR call, with the CCNR call indicator in the **CCNR parameter** in the **IAM** coded as "CCNR call".

```
access              SPA                 SPB
set the destination B no answer
                     <------IAM--------  normal call
                     -------ACM-------> CCNR possible
           No reply

<---disconnect----   <------REL---------
                     -------RLC-------->
                    ... TCAP transaction ...
user frees resources
                  RemoteUserFree to CCNR call ( & reserve resource)
                 resource(s) still available
<-----setup---------  <-----IAM---------  CCNR call
------alert-------->  ------ACM-------->
-----connect------->  ------ANM-------->
<-----disc----------  <-----REL---------
```

1. UNI at SPA no answer.
2. Check that remote user is free by using the RemoteUserFree CCNR ASE operation.
3. Process a CCNR call specified in the IAM.
4. Check that the call is terminated (ANM, CON, ...).

TSS CCNR-ISUP/	TP ISS_V_17_1_9	ISUP'97 reference 5/Q.733.5 [28]	Selection expression DLE	Q.788 [38] reference None

Test purpose
CCNR not possible to destination B
To verify that the IUT is able to generate in a **ACM/CPG** the CCNR possible indicator parameter with a "CCNR not possible" indication.

NOTE: CCNR is not possible. Possible reasons include the queue is set to zero or filled up or due to maintenance reasons.

Pre-test conditions
Arrange the data in the IUT such that CCNR for destination B is not possible

```
access              SPA             SPB
set the destination
B user free
                     <------IAM--------  normal call
                     -------ACM-------> CCNR not possible
          No reply

<---disconnect----   <------REL---------
                     -------RLC-------->
```

1. Set up a call to free user at SPA.
2. Check that "CCNR not possible" is received in the ACM or CPG message.
3. Release the call.

TSS CCNR-ISUP/	TP ISS_V_17_1_10	ISUP'97 reference 6.10.2.2 c)/Q.733.5 [28]	Selection expression DLE AND PICS A.19/9	Q.788 [38] reference None

Test purpose
CCNR call as a normal call - Interaction with CFB
To verify that the IUT deletes the CCNR parameter in the **IAM** if the CCNR call is forwarded by the initially busy user.
Pre-test conditions
User at destination B must subscribe to and activate CFB to an external user while the recall timer is running (CCNR-T9).

```
SPC             SPA               SPB
------IAM------->  (free)
<-----ACM-------- CCNR possible
    No Reply
------REL------->
------RLC------->
  (user at SPA activates CDIV while CCNR-T9 runs)
-----IAM-------->  -------IAM-----> CFB
  with CCNRpar        no CCNRpar
```

1. Set up a call to free user at SPA.
2. Check that no CCNRpar is received in the IAM.

TSS CCNR-ISUP/	TP ISS_V_17_1_11	ISUP'97 reference 5.3.5.1/Q.733.5 [28]	Selection expression DLE AND PICS A.19/6	Q.788 [38] reference None

Test purpose
Maximum number of CCNR request queue entries of destination B
To verify that the IUT supports the maximum number of up to 5 queue entries.

```
 access             SPA                    SPB
 set the destination
 B Free
 user no reply       <-----IAM--------
                     ------ACM-------> CCNR possible

                     ------REL------->
                     <-----RLC--------
                     ...TCAP transaction ...
      Repeat more than 5 set up to no reply user at SPA
:
<----disconnect---   <-----REL--------
                     ------RLC------->
```

1. Set up a call to free user at access.
2. Send maximum number of CCNR requests and check that user at SPA becomes free by using the RemoteUserFree CCNR ASE operation.
3. One more IAM after the maximum number of calls is reached at SPA.
4. Check that "CCNR not possible" is received in the ACM/CPG.
5. Release the call.
6. Set up calls (maximum 5 different) from SPB to SPA which encounters user at SPA no answer. Activate CCNR for the different calls.
7. User at SPB requests maximum allowed CCNR request.
8. Received ACM/CPG with "CCNR not possible".

TSS CCNR-ISUP/	TP ISS_V_17_1_12	ISUP'97 reference 5.3.5.1/Q.733.5 [28]	Selection expression DLE	Q.788 [38] reference None

Test purpose

Incoming non-CCNR call with identical service requirements released

To verify that the IUT, having an entry in the CCNR queue, releases a second incoming call if the service requirements of the second call are identical to the entry being processed and resources are available.

NOTE: The original request remains in the queue.

Pre-test conditions

Arrange the data in the IUT so that there are free resources in addition to the resource reserved for the first CCNR request.

```
 access             SPA              SPB
set the destination
B free
user no reply        <-----IAM-------- 1st call
                     ------ACM-------> CCNR possible
                     <-----REL--------
                     ------RLC------->
          ... TCAP transaction ..
user frees resources
         RemoteUserFree to 1st call ( & reserve resource
        resource(s) still available for potential 2nd call
                     <-----IAM-------- 2nd. independent call
                     ------REL-------> released because identical requirements
                     <-----RLC--------
         ... check TCAP transaction ...

                     <-----IAM-------- 1st. CCNR call (empty queue)
                     ...continue CCNR call  1st call.
```

1. Set up a 1st call to free user at access.
2. Check address complete message with CCNR possible(1st call).
3. Check that remote user is free by using the RemoteUserFree CCNR ASE operation.
4. Process a second identical (with the same requirement to the one being processed) set up to the same remote user.
5. Check that the call is released with cause XXXXXXXX (2nd call).
6. Continue the 1st CCNR call in order to get an idle state.
7. Continue the 2nd CCNR call in order to get an idle state.

TSS CCNR-ISUP/	TP ISS_V_17_1_13	ISUP'97 reference 5.3.5.1/Q.733.5 [28]	Selection expression DLE	Q.788 [38] reference None

Test purpose

Incoming non-CCNR call with not identical service requirements accepted

To verify that the IUT, having a queue entry in the CCNR queue, accepts a second incoming call if the service requirements of the second call are not identical to the entry being processed and resources are available.

NOTE: The original request remains in the queue.

Pre-test conditions

Arrange the data in the IUT so that there are free resources in addition to the resource reserved for the first CCNR request.

```
access              SPA               SPB
set the destination
B free
user no reply        <-----IAM-------- 1st call
                     ------ACM-------> CCNR possible
                     <-----REL--------
                     ------RLC------->
                     ... TCAP transaction ..
user frees resources
                  RemoteUserFree to 1st call ( & reserve resource)
                  resource(s) still available for potential 2nd call
 <-----setup--------- <-----IAM--------  2nd. independent call
 ------alert--------> ------ACM------->
 -----connect-------> ------ANM------->
 <-----disc---------- <-----REL--------
                ...continue with the 1st CCNR call...
```

1. Set up a call to free user at access.
2. Check address complete message with CCNR possible(1st call).
3. Check that remote user is free by using the RemoteUserFree CCNR ASE operation.
4. Process a second non-identical (without the same requirement to the one being processed) set up.
5. Check that the call is accepted (ANM, CON, ...).
6. End the TCAP dialogue for the 1st call.

6.2.17.1 CCNR Application Service Element (ASE)

TSS CCNR-ASE/	TP ISS_TC_V_17_2_1	ISUP'97 reference 5.1.1.1.1/Q.733.5 [28]	Selection expression OLE	Q.788 [38] reference None

Test purpose

Ability to perform a CCNR REQUEST class 1 operation - successful

To verify that the IUT can successfully perform a CCNR REQUEST operation if required by the calling user:

NOTE 1: Send a **CCNRRequest invoke** to the DLE by using the TCAP primitive **TC-BEGIN request**(TC-INVOKE request).

NOTE 2: Receive a **CCNRRequest return result** from the DLE in a **TC-CONTINUE indication**(TC-INVOKE indication).

Pre-test conditions

Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.

```
 access              SPA                  SPB
 ------setup------->  -------IAM-------->
                      <------ACM-------- CCNR possible
         (normal call, user at SPB no answer)
                      -------REL-------->
                      <------RLC---------
                ... TCAP transaction ...
start CCNR-T1    --
<--CCNR Act request---
--CCNR Act response-->
stop CCNR-T1
start CCNR-T2         xxxxTC_BEGIN_REQ-->
stop CCNR-T2          <--TC_CONTINUE_INDx
start CCNR-T3
:
 ----CCNR recall--->  -------IAM--------->    CCNR call
 :
 <----disconnect----  <-------REL---------
```

1. The access side activates CCNR.
2. The CCNRRequest invocation is received.
3. The user at SPB is now free for a CCNR call.
4. CCNR call set up with "ISDN User Part required all the way" in the FCI of the IAM.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_2	ISUP'97 reference 5.1.1.1.2/Q.733.5 [28]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Ability to perform a CCNR REQUEST class 1 operation - unsuccessful
To verify that if a failure occurs (short or long term denial) while invoking a CCNR REQUEST operation, the IUT is able to indicate the result to the calling user.

NOTE 1: Send a **CCNRRequest invoke** to the DLE by using the TCAP primitive **TC-BEGIN request**(TC-INVOKE request).
NOTE 2: Receive a **CCNRRequest return error** from the DLE in a **TC-END indication**(TC-U-ERROR indication).

Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.

```
 access              SPA                    SPB
  -----setup------>  -------IAM-------->
                     <------ACM-------- CCNR possible
         (normal call, user at SPB no answer)
                     -------REL-------->
                     <------RLC---------
                      ... TCAP transaction ...
start CCNR-T1    --
<--CCNR Act request---
--CCNR Act response-->
stop CCNR-T1
start CCNR-T2          xxxxxTC_BEGIN_REQxxxx->
stop CCNR-T2           <---TC_END_INDxxxxxxxxx
```

1. The access side activates CCNR.
2. The CCNRRequest invocation is received.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_3	ISUP'97 reference 5.1.2.1.1/Q.733.5 [28]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Ability to perform a CCNR CANCEL class 4 operation
To verify that the IUT can successfully perform a deactivation request if required by the calling user:

NOTE: Send a **CCNRCancel invoke** without cancelCause to the DLE by using the TCAP primitive **TC-END request**(TC-INVOKE request).

Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.

```
 access              SPA                    SPB
  -----setup------>  -------IAM-------->
                     <------ACM-------- CCNR possible
         (normal call, user at SPB no answer)
                     -------REL-------->
                     <------RLC---------
                    ... TCAP transaction ...
start CCNR-T1    --
<-CCNR Act request----
--CCNR Act response-->
stop CCNR-T1
start CCNR-T2          xxxxTC_BEGIN_REQxx->
stop CCNR-T2           <--TC_CONTINUE_INDxx
start CCNR-T3
<--CCNR Deact request—
--CCNR Deact response->
                       xxTC_END REQxxxx--->
stop CCNR-T3
```

1. The access side activates and deactivates CCNR.
2. Check that the CCNRRequest invocation is received.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_4	ISUP'97 reference 5.3.1.1/Q.733.5 [28]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Ability to indicate a CCNR recall to the calling user
To verify that the IUT can successfully initiate a CCNR recall to the calling user:

NOTE: Receive a **RemoteUserFree invoke** from the DLE in a **TC-CONTINUE indication**(TC-INVOKE indication).

Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.

```
access               SPA                    SPB
  -----setup------->  -------IAM-------->
                      <------ACM-------- CCNR possible
         (normal call, user at SPB no answer)
                      -------REL-------->
                      <------RLC---------
                         ... TCAP transaction ...
start CCNR-T1    --
<--CCNR Act request---
--CCNR Act response-->
stop CCNR-T1
start CCNR-T2            xxxxTC_BEGIN_REQxxxx-->
stop CCNR-T2             <--TC_CONTINUE_INDxxxx
start CCNR-T3
:
 <---CCNR recall act---
 -----CCNR recall----->   -------IAM------->  CCNR call
 :
 <----disconnect-------   <------REL--------
```

1. The access side activates CCNR request and CCNR recall.
2. Check that the CCNRRequest invocation is received.
3. The user at SPB is now free for a CCNR call.
4. Check that CCNR call with "ISDN User Part required all the way" in the FCI of the IAM.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_5	ISUP'97 reference 5.3.1.1/Q.733.5 [28]	Selection expression OLE	Q.788 [38] reference None

Test purpose

Calling user busy when destination B becomes free

To verify that the IUT can act correctly after receipt of the indication that destination B is free but calling user A is still busy:

NOTE 1: Receive a **RemoteUserFree invoke** from the DLE in a **TC-CONTINUE indication**(TC-INVOKE indication).
NOTE 2: Notify the calling user A.
NOTE 3: Send **CCNRSuspend invoke** in a **TC-CONTINUE request**(TC-INVOKE request) to the DLE.
NOTE 4: Eventually send **CCNRResume invoke** in **TC-CONTINUE request**(TC-INVOKE request) to the DLE if the calling user becomes free.

Pre-test conditions

Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.

```
 access              SPA                  SPB
  -----setup------->  -------IAM-------->
                      <------ACM-------- CCNR possible
         (normal call, user at SPB no answer)
                      -------REL-------->
                      <------RLC---------
                      ... TCAP transaction ...
start CCNR-T1    --
<--CCNR Act request---
--CCNR Act response-->
stop CCNR-T1
start CCNR-T2           xxxxTC_BEGIN_REQxxxx->
stop CCNR-T2            <--TC_CONTINUE_INDxxxx   CCNRRequest return result
start CCNR-T3
                        <--TC_CONTINUE_INDxxxx   RemoteUserFree
stop CCNR-T3
arrange user to be
found busy              xxxxTC_CONTINUE_REQ-->   CCNRSuspend
or CCNR busy
--Receive notification that
the user at SPB is now free,
--Send no response for that
--User A is now free
                        xxxTC_CONTINUE_REQ-->    CCNRResume
```

1. The access side activates CCNR.
2. Check that the CCNRRequest invocation is received.
3. The user at SPB is now free for a CCNR call.
4. End the TCAP dialogue in order to get an initial state.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_6	ISUP'97 reference 1.3/Q.733.5 [28]	Selection expression Local AND PICS A.19/1	Q.788 [38] reference None

Test purpose
Support of the retain option
To verify that the IUT performs the retain option by setting the **retainSupported** parameter to TRUE or FALSE in the **CCNRRequest** or in the **CCNRRequest return result**.
Pre-test conditions for OLE
Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.

```
Case a)
 access             SPA                  SPB
  -----setup------->  -------IAM-------->
                      <------ACM-------- CCNR possible
        (normal call, user at SPB no answer)
                      -------REL-------->
                      <------RLC---------
                       ... TCAP transaction ...
start CCNR-T1    --
<--CCNR Act request---
--CCNR Act response-->
stop CCNR-T1
start CCNR-T2          xxxxTC_BEGIN_REQxxxx->  retainSupported=TRUE
stop CCNR-T2           <--TC_CONTINUE_INDxxxx  retainSupported=TRUE
start CCNR-T3
```

1. The access side activates CCNR.
2. Check that the CCNRRequest invocation is received with "RetainSupported =TRUE".
3. End the TCAP dialogue in order to get an initial state.

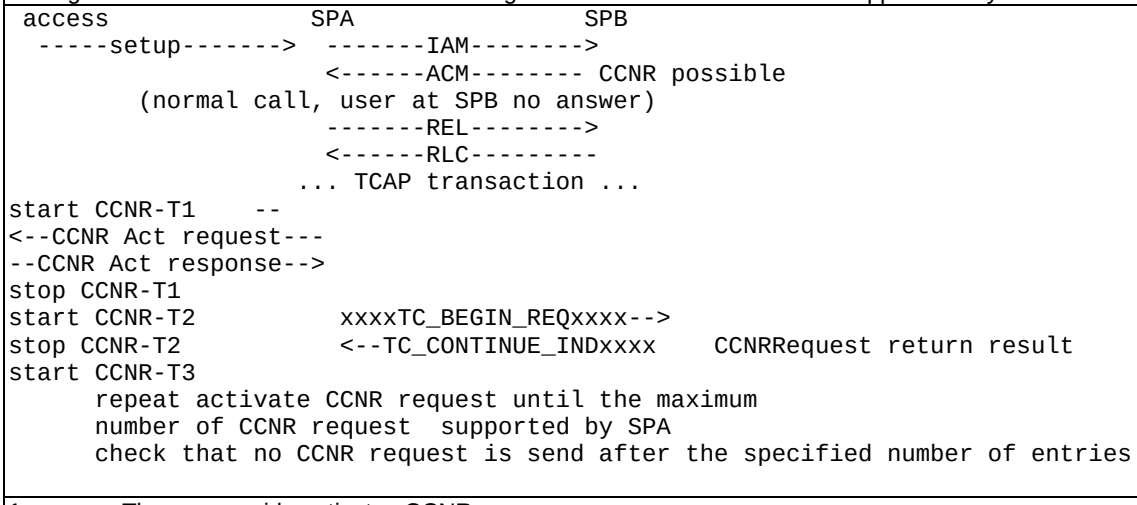
```
Case b)
 access            SPA                  SPB
    set the destination
    B free
                      <-------IAM--------
                       -------ACM------->CCNR possible
        (normal call, user at SPB no answer)
                      <------REL---------
                      -------RLC-------->
... TCAP transaction ...

                      <--TC_BEGIN_REQxxxx  retainSupported=TRUE
                      xxxTC_CONTINUE_IND-> retainSupported=TRUE
    user free         <-------REL--------
                      --------RLC------->
```

1. UNI at SPA free.
2. Check that the CCNRRequest invocation is received with "RetainSupported =TRUE".
3. Free destination B.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_7	ISUP'97 reference 5.1.1.1.1/Q.733.5 [28]	Selection expression OLE AND PICS A.19/2	Q.788 [38] reference None

Test purpose
Maximum number of outstanding CCNR requests of a user
To verify that the IUT does not send any **CCNRRequest** to the DLE if the maximum number of outstanding requests is reached.
Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.

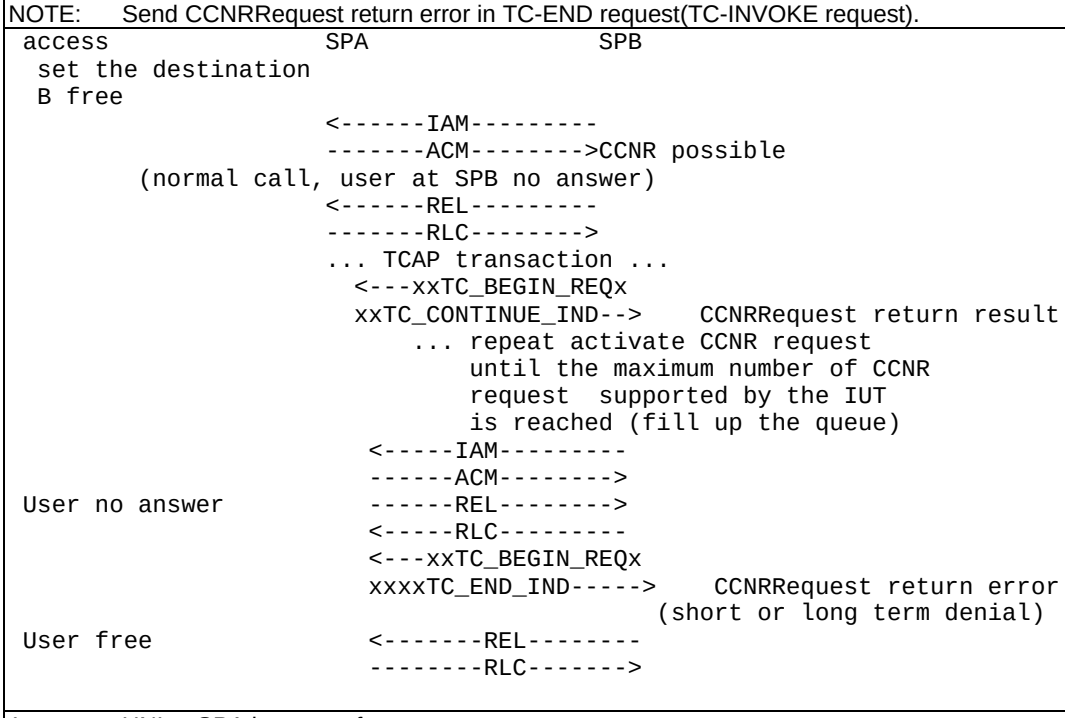


1. The access side activates CCNR.
2. Check that no TC_BEGIN_REQ is sent after the maximum number of CCNR request is reached at SPA.
3. The test case fails if the maximum number of outstanding requests is reached and CCNRRequest is received.
4. End the TCAP dialogue in order to get an initial state.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_8	ISUP'97 reference 5.1.1.2.2; 5.3.5.1; 5.5.4/Q.733.5 [28]	Selection expression DLE AND PICS A.19/6	Q.788 [38] reference None

Test purpose
Maximum number of queue entries CCNR requests
To verify that the IUT sends a **CCNRRequest return error** to the OLE if the maximum number of queue entries is reached.

NOTE: Send CCNRRequest return error in TC-END request(TC-INVOKE request).



1. UNI at SPA becomes free.
2. Call to the destination B.
3. Check that "CCNR possible" is received in the address complete message.
4. Check that CCNRRequest return error is received in TC_END_IND.
5. Free destination B.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_9	ISUP'97 reference 5.5.4/Q.733.5 [28]	Selection expression Local	Q.788 [38] reference None

Test purpose
Ability to end a dialogue
To verify that the IUT can end a TCAP dialogue after a successful CCNR call.

NOTE: Send a **TC-END request** without component primitive upon sending of the **ACM**, **CPG** or **CON**.

Pre-test conditions for OLE
Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.

```
 access               SPA                  SPB
 set the destination
 B free
                         <-----IAM---------
                         ------ACM-------->
 User no answer          ------REL-------->
                         <-----RLC---------
                      ... TCAP transaction ...
                        <---xxTC_BEGIN_REQx
                        xxTC_CONTINUE_IND-->  CCNRRequest return result
 :
                        xxTC_CONTINUE_IND-->  RemoteUserFree
:
 <-----set up-------   <-------IAM---------    CCNR call
                       --------ACM-------->
                       xxxxTC_END_IND----->
 :
 <----disconnect----   <-------REL---------
```

1. UNI at SPA free.
2. Check that a TC_END_IND primitive without component is received in order to end the CCNR operation.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_10	ISUP'97 reference 7.1/Q.733.5 [28]	Selection expression OLE AND PICS A.19/7	Q.788 [38] reference None

Test purpose
Initiate the CCNR supplementary service even if no even if no CCNR possible indicator is received in the ACM/CPG
To verify that the IUT sends a **CCNRRequest invoke** if the calling user activates the CCNR.
Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.

```
 access              SPA                   SPB
 ------setup------->  -------IAM-------->
                       <------ACM---------
(normal call, user at SPB no answer)
                       -------REL-------->
                       <------RLC---------
                    ... TCAP transaction ...
start CCNR-T1    --
<--CCNR Act request---
--CCNR Act response-->
stop CCNR-T1
start CCNR-T2          xxxxTC_BEGIN_REQxxxx-->
stop CCNR-T2           <--TC_CONTINUE_INDxxxx
start CCNR-T3
:
 ----CCNR recall--->   -------IAM------->    CCNR call
 :
 <----disconnect----   <-------REL-------
```

1. The access side activates CCNR.
2. Check that the CCNRRequest invocation is received.
3. The user at SPB is now free for a CCNR call.
4. CCNR call set up with "ISDN User Part required all the way" in the FCI of the IAM .

TSS CCNR-ASE/	TP ISS_TC_V_17_2_11	ISUP'97 reference 9.1/Q.733.5 [28]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Support of the retention timer CCNR-T1
To verify that the retention timer CCNR-T1 can be started after receive of a **address complete message** with CCNR possible from the DLE and stopped normally after activation of the CCNR supplementary service by the calling user.
Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.

```
 access            SPA                  SPB
 ------setup------->  -------IAM-------->
                      <------ACM---------
(normal call, user at SPB no answer)
 <-----disconnect---  <------REL---------
                      -------RLC-------->
                                           SPB starts CCNR-T1 and receives
                                           nothing until the timer expires
<------facility-------
         Act CCNR
start CCNR-T1
send nothing until it expires
```

1. The access side activates CCNR after CCNR-T1 runs out.
2. Check that no CCNR request is stored in the queue.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_12	ISUP'97 reference 5.5.4.1 c); 9.1/Q.733.5 [28]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Support of the CCNR request operation timer CCNR-T2
To verify that the timer CCNR-T2 can be started after sending of a **CCNRRequest** to the DLE and stopped normally after receipt of **CCNRRequest return result** from the DLE.

NOTE: If the timer expires a **TC-END** with **TC-L-CANCEL** indication primitive is received from the DLE and the service request is rejected.

Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.

```
 access                      SPA                                  SPB
 ------setup------->  -------IAM-------->
                      <------ACM---------
(normal call, user at SPB no answer)
 <----disconnect----  <------REL---------
                      -------RLC-------->
                  ... TCAP transaction ...
start CCNR-T2         xxxTC_BEGIN_REQ-->     SPB starts CCNR-T2 and sends
                      <--TC_ENDxxxxxxxxxx    TC_END_IND if the timer expires
```

1. The access side activates CCNR.
2. End the TCAP dialogue in order to get an initial state.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_13	ISUP'97 reference 5.1.2.1.2/Q.733.5 [28]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Support of the CCNR service duration timer CCNR-T3
To verify that the IUT can successfully deactivate a CCNR request if the CCNR service duration timer CCNR-T3 expires.

NOTE: Send a **CCNRCancel invoke** with cancelCause to the DLE by using the TCAP primitive **TC-END request**(TC-INVOKE request) with cancelCause "CCNR-T3 Timeout".

Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.

```
 access              SPA                                    SPB
 ------setup------->  -------IAM-------->
                      <------ACM---------
(normal call, user at SPB no answer)
 <-----disconnect---  <------REL---------
                      -------RLC-------->
                     ... TCAP transaction ...
start CCNR-T2         xxxxTC_BEGIN_REQ-->     CCNRRequest invoke
stop CCNR-T2          <---TC_CONT_INDxxxx     CCNRRequest return result
start CCNR-T3
starts CCNR-T3 and sends TC_CONTINUE_IND with RemoteUserFree if it expires
                      <---TC_CONT_INDxxxxx     RemoteUserFree
                      xxxxxTC_END_REQ---->   TC_END_IND with CancelCause
"timeout CCNR-T3"
```

1. The access side activates CCNR.
2 After CCNR-T3 timer expiry the IUT shall send the CancelCause "CCNR-T3 timeout" in a TC_END.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_14	ISUP'97 reference 5.1.2.1.2 ii); 9.1/Q.733.5 [28]	Selection expression OLE	Q.788 [38] reference None

Test purpose
Support of the CCNR recall timer CCNR-T4
To verify that the timer CCNR-T4 can be stopped after receiving an indication from the user for a CCNR recall.

NOTE: CCNR-T4 contains the maximum time the network will wait for the calling user A to respond to a CCNR recall. The OLE sends a **CCNRCancel invoke** in **TC-END request** to the DLE in case of CCNR-T4 expiry.

Pre-test conditions
Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.

```
access              SPA                  SPB
 ------setup------->  -------IAM-------->
                      <------ACM---------
(normal call, user at SPB no answer)
 <-----disconnect---  <------REL---------
                      -------RLC-------->
                     ... TCAP transaction ...
start CCNR-T2         xxxxTC_BEGIN_REQ-->     CCNRRequest invoke
start CCNR-T3         <---TC_CONT_INDxxxx      CCNRRequest return result
:
                      <---TC_CONT_INDxxxxx     RemoteUserFree

SPB starts CCNR-T4 and receives TC_END_IND with CancelCause if it expires
                      xxxxxTC_END_REQ---->   TC_END_IND with CancelCause
"timeout CCNR-T3"
```

1. The access side activates CCNR and does not accept the CCNR recall within CCNR-T4.
2. Check that the CancelCause "CCNR-T4 timeout" is received in a TC_END.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_15	ISUP'97 reference 5.3.1.2 b) i)/Q.733.5 [28]	Selection expression OLE AND PICS A.19/5	Q.788 [38] reference None

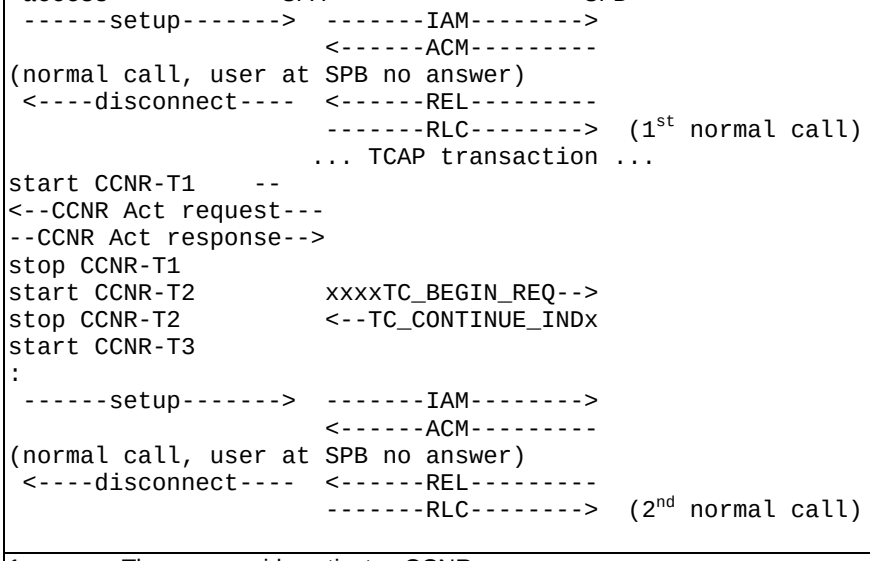
Test purpose

Reject a second identical activation of CCNR

To verify that the IUT does not send any CCNRRequest to the DLE if a second identical activation of CCNR is done.

Pre-test conditions

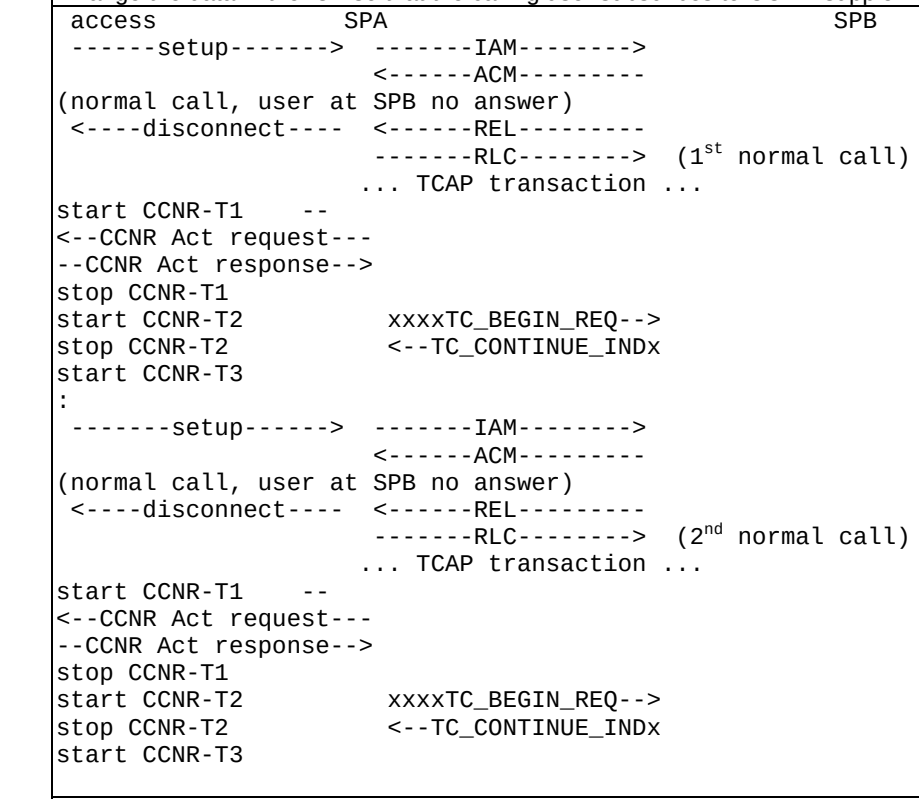
Arrange the data in the IUT so that the calling user subscribes to CCNR supplementary service.



1. The access side activates CCNR.
2. First call to no answer user at SPB.
3. Check that the CCNRRequest invocation is received.
4. Second identical call from the IUT to the same SPB.
5. End the TCAP dialogue.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_16	ISUP'97 reference 5.3.1.2 b) ii)/Q.733.5 [28]	Selection expression OLE AND PICS A.19/4	Q.788 [38] reference None

Test purpose
Treat a second identical activation of CCNR as a new request
To verify that the IUT treats a second identical activation of CCNR as a new request.
Pre-test conditions
Arrange the data in the IUT so that the calling user subscribes to CCNR supplementary service.



1. The access side activates CCNR.
2. First call to no answer user at SPB.
3. Check that the CCNRRequest invocation is received.
4. Second identical call from the IUT to the same SPB.
5. Second identical activation of the CCNR request.
6. End the TCAP dialogue.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_17	ISUP'97 reference 5.1.2.2.2/Q.733.5 [28]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Support of the CCNR service supervision timer CCNR-T7
To verify that the IUT deactivates the CCNR-request if CCNR-T7 expires.

NOTE 1: CCNR-T7 is started after sending a **CCNRRequest return result** to the OLE.
NOTE 2: CCNR-T7 is stopped after the destination B becomes not busy, before sending **RemoteUserFree** to the OLE.
NOTE 3: Send a **CCNRCancel invoke** in a **TC-END request**(TC-INVOKE request) with cancelCause "CCNR-T7 Timeout".

```
 access                SPA                SPB
 set the destination
 B free
                       <-----IAM----------
                       ------ACM--------->
(user at SPB no answer)
                       ------REL--------->
                       <-----RLC----------
                       ... TCAP transaction ...
                       <---xxTC_BEGIN_REQx
                       xxTC_CONTINUE_IND-->  CCNRRequest return result

SPB starts CCNR-T7 and receives TC_END_IND with CancelCause
"CCNR-T7 Timeout" if it expires
                       xxxxxTC_END_IND--->
    user free          <-------REL--------
                       --------RLC------->
```

TSS CCNR-ASE/	TP ISS_TC_V_17_2_18	ISUP'97 reference 5.3.1.5 a); 9.1/Q.733.5 [28]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Support of the destination B idle guard timer CCNR-T8
To verify that no resources are available at the destination B side until timer CCNR-T8 expires.

```
access                SPA                        SPB
 set the destination
 B free
                        <--------IAM----------
                        ---------ACM--------->
(user at SPB no answer)
                        ---------REL--------->
                        <--------RLC----------
                      ... TCAP transaction ...
                        <---xxTC_BEGIN_REQx    CCNRRequest
                       xxTC_CONTINUE_IND-->   CCNRRequest return result
:
User is now free        SPB starts timers CCNR-T8
                        SPB checks every second that no resources
                        are available by using T_LOCAL timer
                        <--------IAM----------
                        ---------REL--------->
                        <--------RLC----------
:
<-------setup-------   <--------IAM----------   CCNR-T8 expires
--------alert------>   ---------ACM--------->
-------connect----->   ---------ANM--------->
```

1. Check that no resources are available within CCNR-T8, e.g., send an IAM and receiving a REL.
2. Check that resources are now available by sending an IAM and receiving an ACM, etc.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_19	ISUP'97 reference 5.3.5.2 d); 9.1/Q.733.5 [28]	Selection expression DLE	Q.788 [38] reference None

Test purpose
Support of the DLE recall timer CCNR-T9
To verify that the timer CCNR-T9 can be started after sending of a **TC-CONTINUE** with **RemoteUserFree** from the DLE and stopped after CCNR call is received from the OLE.

NOTE: Send a **CCNRCancel invoke** in a **TC-END request**(TC-INVOKE request) with cancelCause "CCNR-T9 Timeout".

```
 access                SPA               SPB
  set the destination
 B free
                        <-----IAM----------
                        ------ACM--------->
(user at SPB no answer)
                        ------REL--------->
                        <-----RLC----------
                       ... TCAP transaction ...
                        <---xxTC_BEGIN_REQx
                        xxTC_CONTINUE_IND-->  CCNRRequest return result
:
                        xxTC_CONTINUE_IND-->  RemoteUserFree

                        SPB starts CCNR-T9 and receives
                        TC_END_IND with CancelCause
                        "CCNR-T9 Timeout" if it expires
                        xxxxxTC_END_IND--->
 user free              <-------REL--------
                        --------RLC------->
```

1. Check that the CancelCause "CCNR-T9 timeout" is received in a TC_END.
2. Free destination B.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_20	ISUP'97 reference 7.7.3.3.1; 7.7.3.3.2; 9.3/Q.733.5 [28]	Selection expression Local AND PICS A.19/19	Q.788 [38] reference None

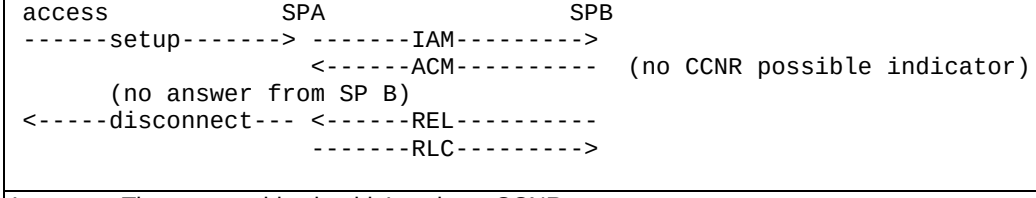
Test purpose
Support of the interworking supervision timer T_{SUP}
To verify that the timer T_{SUP} is used correctly in case of interworking with a private network.

NOTE 1: The DLE sends a **CCNRCancel invoke** in **TC-END request** to the OLE without cancelCause in case of T_{SUP} timer expiry.
NOTE 2: The OLE sends a **CCNRCancel invoke** in **TC-END request** to the DLE without cancelCause in case of T_{SUP} timer expiry.

Pre-test conditions for OLE
Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.

```
 SPC             SPA               SPB (private network)
 -------IAM------->   -------IAM------>
 <------ACM--------   <------ACM-------
(user at SPB no answer)
 <------REL--------   <------REL-------
 -------RLC------->   -------RLC------>
                   ... TCAP transaction ...
 xxxTC_BEGIN_REQ-->   xxTC_BEGIN_REQ-->
                       SPB starts T_SUP and sends no
                       CCNRRequest return result within T_SUP
                      xxxTC_END_REQ--->  TC_END_IND without CancelCause
```

1. Check that a TC_END without CancelCause is received.

TSS CCNR-ASE/	TP ISS_TC_V_17_2_21	ISUP'97 reference 5.1.1.1.1/Q.733.5 [28]	Selection expression OLE	Q.788 [38] reference None
Test purpose *CCNR REQUEST not invoked* To verify that if a call is attempted with a ACM without CCNR possible indicator, then no CCNR REQUEST shall be sent from the OLE to the DLE. Pre-test conditions Arrange the data in the IUT such that the calling user subscribes to the CCNR supplementary service.				
				
1. The access side shouldn't activate CCNR. 2. Do not answer the call and do not include CCNR possible indicator.				

7 Test Coverage

The test purposes defined in this test specification cover most main capabilities of the ISUP'97 reference specification for supplementary services. A list containing the number of test purposes for each supplementary service is provided in table 3.

Whenever it was possible, the test purposes have been described such that they bundle related requirements of the standard. Due to this fact a test purpose may lead to implementing several test cases for the ATS.

The majority of test purposes (over 80 %) concentrate on valid behaviour. The number of invalid behaviour test purposes is limited. An expansion of the invalid behaviour test purposes is left for further study.

Table 3: Number of tests for the ISUP'97supplementary services

Item	Supplementary service	Group	Number of test purposes
1	Calling Line Identification Presentation	CLIP	19
2	Calling Line Identification Restriction	CLIR	11
3	Connected Line Identification Presentation	COLP	18
4	Connected Line Identification Restriction	COLR	12
5	Terminal portability	TP	10
6	User-to-user signalling service 1 implicit	UUS1_I	6
	User-to-user signalling service 1 explicit	UUS1_E	18
	User-to-user signalling service 2	UUS2	16
	User-to-user signalling service 3	UUS3	17
7	Closed User Group	CUG	23
8	Sub-addressing	SUB	5
9	Malicious Call Identification	MCID	16
10	Conference call, add-on	CONF	16
11	Explicit Call Transfer	ECT	30
12	Call diversion services	CDIV	49
13	Call Hold	HOLD	12
14	Call Waiting	CW	8
15	Completion of Calls to Busy Subscriber (ISUP)	CCBS_ISUP	15
	Completion of Calls to Busy Subscriber (ASE)	CCBS_ASE	21
16	Three Party service	THREE_PTY	9
17	Completion of Calls on No Reply	CCNR	34
	Grand total		365

Bibliography

The following material, though not specifically referenced in the body of the present document (or not publicly available), gives supporting information.

- ITU-T Recommendation Q.767 (1991): "Application of ISUP for international ISDN interconnections".
- ITU-T Recommendation Q.850 (1998): "Usage of cause and location in the Digital subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN User Part".
- ISO/IEC 9646-2 (1994): "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 2: Abstract Test Suite Specification".
- ISO/IEC 9646-5 (1994): "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 5: Requirements on test laboratories and clients for the conformance assessment process".

History

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